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ABSTRACT

This manual contains documentation of a 3-week course conducted jointly in March 1982 by the Tanzanian Ministry of Education and the International Institute for Educational Planning on the subject of the school map (or micro-plan). Prepared at the regional or subregional level, the school map aims at equalizing educational opportunities and teaching conditions for pupils from different geographical zones. Teaching materials distributed to the course's 50 participants (42 Tanzanians and others from Zimbabwe, Zambia, Botswana, Ethiopia, Somalia, and Uganda) consisted of 3 basic components: lecture/discussions, practical exercises, and national/regional project presentations. The bulk of the present document reproduces the contents of the teaching materials for the course's 13 lectures, which cover such topics as the planning of literacy and post-literacy programs in Tanzania, the use of demographic data for school enrollment analysis, and procedures for generalizing the school map. Appendixes include the training conference's closing speech by the Tanzania Minister of Education, names and addresses of course participants, and a copy of the course evaluation questionnaire. (JBM)

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REPORT

Intensive training course on microplanning and school mapping

Arusha, United Republic of Tanzania, 8-26 March 1982

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International Institute for Educational Planning
(established by Unesco)

in collaboration with the Tanzanian Ministry of National Education

This report was prepared by Ms F. Caillods with the assistance of Ms S. Heyman

REPORT

INTENSIVE TRAINING COURSE ON MICROPLANNING AND SCHOOL MAPPING

ARUSHA, UNITED REPUBLIC OF TANZANIA
8th - 26th MARCH, 1982

International Institute for Educational Planning
(Established by Unesco)
in collaboration with the
Tanzanian Ministry of National Education

This report was prepared by Ms. F. Caillods, with
the assistance of Ms. S. Heyman

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PART I

INTRODUCTION

INTRODUCTION

Many education plans and educational reforms have not been implemented fully or have failed simply because they were not based on an in-depth diagnosis of the situation at the regional and sub-regional level, or because human and financial implications and the actual implementation conditions in the field had not been properly studied. The school map (or the microplan) is prepared at the regional or sub-regional level ; it starts from a very detailed analysis of the coverage of the educational system and of the teaching/learning conditions in each district or region before making any propositions for future years. It aims at equalizing educational opportunities and teaching conditions for pupils from different geographical zones and allows the rationalisation of human, material and financial resources. It requires the direct involvement of district and regional education officers in the preparation and in the different stages of its implementation. Finally, it implies some participation of the various parties involved (local authorities, teachers, parents, etc.). It is thus a priviledged instrument for planning education at the local level and as such is an indispensible complement to planning at the central level. For several years now, many developed and developing countries have felt the need to develop methodologies and to form teams engaged in introducing school mapping and microplanning.

Based on the results of its research programme, the International Institute for Educational Planning has organised, since 1974, various intensive courses on school mapping. These include two courses in Paris (1974 and 1975), one in French and the other in English, followed by various regional or national intensive courses in Latin America (Colombia, Venezuela, Mexico and Ecuador), Asia (Indonesia), the Arab States (Yemen Arab Republic and Oman) and French-speaking Africa (Cameroon). The first course organised for English-speaking African countries was held in Ibadan, Nigeria in 1980. Two planning officers from Tanzania who participated in this course, on their return to Tanzania started up a pilot study on one particular region of the country. Later on, the Tanzanian Ministry of National Education approached the IIEP requesting the organization of another course to train the various regional and central educational officers on the techniques of school mapping and microplanning. It was thus decided that IIEP and the Ministry of National Education of Tanzania would jointly organize a three-week course and that some representatives from neighbouring countries would be invited to participate.

The course was held in Arusha from 8 to 26 March 1982. Miss F. Caillods was in charge of its preparation and organization on behalf of the IIEP, and Mr. Noah Mugogo, Director of the Sectoral Planning Department in the Ministry of National Education, was responsible for its organization on the part of the Tanzanian Government.

Objectives of the course

The objective of the course was to train participants in the various techniques of preparation of an educational plan and of the school map at the regional and district levels, as well as discuss some of the issues which are at stake when using these techniques.

More specifically, in the case of Tanzania today the objectives of the educational policy are :

(1) to consolidate the universalization of primary education and literacy (ensuring proper attendance of pupils and adults and improving teaching and learning conditions) ;

(2) to increase the proportion of primary school leavers who have access to secondary education.

The proportion of Standard VII leavers having access to public secondary schools has steadily declined in the past from 11% in 1971 to 5% in 1977, 4.2% in 1980 and 2.6% in 1981. It is expected, if no drastic measures are taken, that this proportion will drop to less than 1% by 1984 with the arrival of the big wave of Standard VII leavers following universal primary education. At the time the course took place, the Government had not yet fixed the target transition ratio, but a decision to increase this ratio was expected very soon. As a result, during the course, participants worked on various alternative assumptions concerning the expansion of the secondary school system. All alternatives implied the opening of a large number of schools. As much as possible the possibility of opening day schools was considered, while, for the time being, nearly all public secondary schools are boarding schools with a quasi-national catchment area.

As a consequence, our objective in the course was to train regional education officers on :

- techniques for preparing the secondary school map : regional education officers will be in charge of planning the large expansion in the number of secondary schools in the near future ;
- techniques for preparing the primary school map : their responsibility there will be to train the district education officers (4 to 5 per region) who, since the decentralisation of primary education, are in charge of the organization and planning of primary education at the local level.

Selection of participants

In prior negotiations with the Ministry of National Education, it was decided that IIEP would bear the travel and maintenance costs of all international participants, and that the Ministry would cover the expenses of all Tanzanian participants. In view of this, it was agreed that the Ministry of National Education would proceed with the selection of some 40 Tanzanian participants, which should include logistic and supply officers at the regional level, officers responsible for literacy and post-literacy programmes at the zonal level, representatives from the Zanzibar Ministry of Education, officials from different divisions of the Ministry involved in primary and secondary education planning and administration, and a representative from the University of Dar-es-Salaam. The IIEP, on the other hand, was to select seven international participants from neighbouring English-speaking East African countries.

The Institute sent out invitations to seven countries, namely : Botswana, Ethiopia, Kenya, Somalia, Uganda, Zambia and Zimbabwe, asking the Ministries of Education of these countries to present candidatures of persons with at least two years' experience in the field of educational planning and administration or in planning the location and capacities of schools. The IIEP offered to cover the costs of one official candidate from each country, but was willing to accept more candidatures provided that a source could be found to finance the participant's travel and living expenses.

The final selection of candidates was made in the month of February, and a total of 50 participants attended the course. These included : 42 Tanzanians (of which 8 were from the Ministry in Dar-es-Salaam, one from the Institute of Adult Education, 29 from the regions, and 4 from Zanzibar), 2 participants from Zimbabwe and Zambia, and one each from Botswana, Ethiopia, Somalia and Uganda. A detailed list of participants can be found in Annex 3 to this report. Each accepted candidate was sent a detailed programme of the course, together with a copy of the IIEP publication "Planning the location of schools" by J. Hallak, a note explaining the data each participants should bring with him/her for the preparation of a national/regional project, as well as a brief descriptive note on the living conditions at the Danish Training Centre, where the course was held, and Arusha.

Preparation of the course

As in other similar courses, it was decided to develop a series of exercises which would illustrate the techniques of school mapping and micro-planning in one district of the country. During her first exploratory mission to Dar-es-Salaam in June 1981, Ms. Caillods discussed the choice of the pilot district with the Planning Unit of the Ministry of Education. Finally, it was decided to select the Kilosa District in the Morogoro Region, since on the one hand it presented characteristics not very different to those of the rest of Mainland Tanzania (163 primary schools and one public secondary school, a gross enrolment ratio of 96 % in primary education, but a net enrolment ratio of 70.4 %), and on the other hand, it was sufficiently close to Dar-es-Salaam to allow data collection by means of a questionnaire. During that same exploratory mission, questionnaires were drawn up which were to be distributed to all primary schools in the region and covered both primary and adult education (literacy and post-literacy courses). The surveys were carried out by the staff of the Planning Unit in the Ministry during the month of November 1981. Ms. Caillods returned to Dar-es-Salaam from 15 December 1981 to 15 January 1982 in order to analyse the questionnaires jointly with the staff of the Planning Unit. The exercises were prepared by Ms. Caillods in February 1982 at the IIEP in Paris.

Organization and financing of the course

The course took place at the Danish Volunteer Training Centre, some 20 Kms. from Arusha. A large seminar room was available for plenary and working group sessions. The Ministry of Education provided secretarial services for the entire duration of the course.

Non-Tanzanian participants, some Tanzanian participants and the staff were housed at the Centre. In view of the lack of space available, the majority of the Tanzanian participants were accommodated in various guest houses in Arusha town. Transportation was provided to and from the Centre.

The IIEP financed nearly all international costs (travel and per diem of staff, travel, boarding and special allowances for the seven international participants), together with the costs of the preparation and reproduction of the teaching materials. One Zimbabwe participant attended the course on a USAID fellowship. All other costs, mainly local, were borne by the Ministry of National Education. These included transport and per diem of all the Tanzanian participants, transportation facilities in Arusha, as well as to and from the airport, local reproduction costs, secretarial services, week-end excursions, etc..

Programme and content of the course

The course consisted of three basic components (the detailed programme is attached in Annex 4) :

- Lecture/discussions, during which the basic concepts and techniques used in school mapping and microplanning were presented and discussed. A detailed outline of each lecture was distributed to participants in advance.

- Practical exercises : each lecture was followed by a practical exercise illustrating for one district of Tanzania the use of techniques presented in the lecture. Twelve exercises covering the various steps involved in the preparation of the school map had been prepared using the data collected in the survey carried out on enrolment, teachers, equipment and facilities in primary and secondary schools, as well as for literacy and post-literacy courses, in Kilosa District. Exercises were carried out in working groups (8 such groups had been formed) and then discussed in plenary sessions.

A complete set of all the teaching materials distributed to participants is included in Part II of this report.

- Preparation of national/regional projects : each participant was asked to bring with him/her detailed information on one district of his/her region or country in order to start a project for the introduction of school mapping. Tanzanian participants had been regrouped into seven groups to start the preparation of a secondary school map for one district of each of the seven zones. All of them, however, did not have all the necessary data (maps, information on schools, etc.). On the whole, they were able to start the diagnosis of primary education in seven districts and they were given instructions on how to proceed once they got back to their respective regions, with the projection of enrolments and planning the location of secondary schools. The participants from Zanzibar prepared a fairly detailed diagnosis of primary and secondary education in the various regions. Non-Tanzanian participants were organized into three groups (given the availability of data) and three projects on the introduction of the school map were prepared for one region of Ethiopia, Somalia and Uganda.

- In addition, a number of lectures/presentations on the Tanzanian experience were given at the beginning of the course. These included one on the "Tanzanian educational policy, planning and administration" and another on "Planning literacy and post-literacy programmes". They allowed for a very lively discussion on the educational policy and planning of Tanzania and the issues at stake. Similar presentations were made for the other countries represented in the course (Ethiopia, Somalia, Botswana, Zambia and Zimbabwe) ; copies of the outlines for these presentations are included in Part III of this report.

Two visits were organized : one to a rural primary school and the other to a neighbouring Ujaama village. Both visits were extremely stimulating and gave the outside participants an excellent opportunity to acquire a more concrete view of Tanzania's development and educational policy.

During one of the week-ends, a special sight-seeing tour to Lake Manyara National Park was organized by the Tanzanian hosts and was particularly appreciated by the participants.

Teaching staff

On behalf of the IIEP, Françoise Caillods, Gabriel Carron and Ta Ngoc Châu were responsible for the teaching and tutoring of the participants. Mr. de Bosch Kemper, on behalf of the Unesco Regional Office for Education in Africa, Dakar, Senegal, took part in the course and was also involved in the lecturing and tutoring of participants. On the Tanzanian side, Mr. Mugogo, Director of Planning in the Ministry, played a crucial role in placing the whole seminar in a general policy perspective. He also contributed greatly to the creation of a highly cooperative atmosphere.

Mrs. Siwale, Minister, National Ministry of Education, officially closed the course on Friday 26 March 1982 and delivered certificates of attendance to all participants. A copy of her speech on this occasion can be found in Annex 1 to this report.

Evaluation of the course

A few days before the end of the course a questionnaire was distributed to participants asking them to evaluate the different phases of the course and its preparation in order to suggest improvements for similar courses in the future. This written evaluation was complemented by an oral evaluation. The results of the questionnaire are included in Annex 5 to the report. The following main conclusions can be drawn from the remarks in general :

(a) Preparation of the course :

- Many participants mentioned that the material was not sent sufficiently in advance for them to be able to prepare for the course. This was due in many instances to delays in postal services. Some participants received notification of their admission to the course only a week or so before its commencement and thus did not have sufficient time to collect all the necessary data for the preparation of national/regional projects.

- It was also felt that the participants should be informed earlier of their admission to the course.

(b) The course itself :

- On the whole the course was judged as "good" and "very good".

- The sequence of lectures and practical exercises was very much appreciated and the content was found to be very useful and extremely relevant.
- 50 per cent of the participants felt that more time should be devoted to costs and the prospective school map.
- The majority of participants felt that not enough time was devoted to the preparation of national/regional projects. In the oral evaluation, many participants suggested that a full week should be devoted to that part of the programme. Others suggested organizing the course in two phases : the first, devoted to methodological lectures and practical exercises, would be presented and then the participants would go and work in their respective regions. The second phase would aim at evaluating the progress of their work.
- Many participants found the course to be short and in fact the majority felt that at least four weeks should be devoted to such a course.
- Accommodation at the Danish Centre was judged to be very good on the whole, although a few Tanzanian participants were not very happy with the arrangements in Arusha town.

(c) Future courses :

- Other topics mentioned for the organization of future courses included : educational management and administration, curriculum development and evaluation, evaluation of educational programmes and projects, techniques of educational research and data collection.
- In order to keep in touch with the Institute, many participants suggested that we send them our list of publications and that we keep them informed of similar training courses and seminars which the IIEP organizes. The organization of follow-up courses was also suggested.

Conclusions

This course was, in many respects, an innovative one. It was the first time that the IIEP had such a large number of participants, but in spite of this the exchange of experiences between participants from different countries, between people working at different administrative levels (local, regional and central), proved to be very enriching. It was also the first time that both formal (primary and secondary education) and non-formal (literacy, post-literacy and post-primary technical courses) education were covered, and the latter proved to be a very interesting component.

The fact that the course took place at a moment when the decision concerning opening access to secondary schools in Tanzania was being prepared produced very frank and fruitful discussions on such points as : the relationship between education and development, between secondary education and employment, on the process of planning at local and central levels, the impact of various alternatives on costs and on the equality of educational opportunities.

As a follow-up to the course, the Department of Planning in the Ministry of National Education has organized and is planning to organize a number of other meetings in order to evaluate the work which the Tanzanian participants have been able to carry out in their respective regions, and has requested the participation of IIEP.

PART II

TEACHING MATERIALS :

THE INTRODUCTION OF SCHOOL MAPPING & MICROPLANNING IN THE DISTRICT OF KILOSA, MOROGORO REGION, TANZANIA

LECTURE No I

MICRO-PLANNING, SCHOOL MAPPING AND MACRO-PLANNING

GENERAL INTRODUCTION

by

F. Caillods

INTRODUCTION

In the broadest sense, micro-planning of education, of which school mapping is the principal element, means planning of education at regional/district/school level, done and implemented by local personnel.

The need for micro-planning has emerged from the extreme complexity of planning tasks at national level, the great difficulty of implementing in the field objectives defined centrally and, to a certain extent, from the failure of many planning exercises to reduce disparities between regions, urban and rural areas, groups, and to make education more relevant to the needs of local society and development. Indeed, inequalities, far from diminishing, have often been maintained or even increased: already-developed regions have continued to expand their educational system much faster than planned while in others objectives have not been implemented, schools have not been created as forecasted or it has not been possible to stimulate demand where school attendance was low. Those deficiencies of central, national planning, have often been attributed to:

- Insufficient knowledge of the situation prevailing in various regions or zones. Lack of thorough diagnosis of factors governing educational demand, environmental conditions, characteristics of population to be served, have led to the definition of objectives and targets of the educational policy, to teaching methods and content of education irrelevant to the needs of certain regions and areas;

- Insufficient importance attached to the way decisions could be implemented in the field . Lack of administrative organization and financial means have led to non-implementation of policy;

- Lack of participation on the part of regional and local personnel in the planning process.

These limitations have brought about the need for micro-planning and school mapping as an indispensable complement to macro-planning of education.

Such questions as:

"Along which criteria should we develop our educational system: social demand manpower requirements; rate of return analysis"

or

"How many and who should attend education at post-secondary level"

or

"How to allocate resources between various regions so as to correct existing imbalances"

are relevant to planning both at micro and macro level. They should, however, be decided at the central level, taking into account the objectives of development for the whole country.

I. OBJECTIVE OF SCHOOL MAPPING

Wherever there is resort to planning, the country's education plan lays down, in respect of the period under consideration(1), the quantitative and qualitative aims for education decided on by the authorities after taking into account the requirements arising and the resources which they can or are prepared to devote to meeting them.

The work on drawing up the school map and the micro-plan will be the means of putting the aims of the plan into concrete shape on the ground. No more thought will be given to expanding or remodelling the system in general terms, but rather of achieving educational aims as regards school children, wherever they may be and can be brought together.

Seen in this light, the drawing-up of a school map rationally to take care of all the factors that have to be taken into account is a normal and necessary stage in the application of the plan in the country's regions and districts.

At the same time, it is a stage which allows local authorities and the people concerned to take part in defining and bringing the plan into operation where it concerns them, in the region, department or province, district, commune or parish, and so on. It is when the work is being done in these ever-smaller administrative units that confrontation takes place between the overall aims worked out by the central authorities and each region's or area's peculiar characteristics and any necessary adaptations are made. In the light of this, prior thought given to the school map can often be a means of assessing more exactly the amount of resources to be voted for the national plan.

The objectives of the educational plans can be of different order:

- reach universal primary education;
- extend compulsory education and create a nine-year basic education system;
- implement an educational reform: structural or curricula (vocationalization of education);
- improve the quality of education and increase its efficiency.

In each case the micro-plan and the school map will have specific objectives. Commun objectives, however, will be:

(1) to achieve equality of opportunity

(2) to improve efficiency in the use of resources.

II. PHASES IN THE PREPARATION OF THE SCHOOL MAP AND FACTORS TO BE TAKEN INTO CONSIDERATION

The preparation of the school map is a real planning exercise at the regional/local level. It encompasses three phases:

1. Diagnosis: analysis of the present educational supply and identification of existing inequalities in access to schooling and teaching conditions;
2. Projection of school requirements;
3. Drawing up of the prospective school map, allowing equalization of opportunities and of teaching conditions, while respecting certain norms and standards in the use of teachers and buildings

Various factors will have to be taken into account:

(a) The demographic factor: This is the factor which first comes to mind since, whether the aim is that of setting up, expanding or altering the school network, one of the first questions to be faced is that of the potential 'clientele' (the demographic factor), and its distribution. The work done will have to take account of population movements so far as they can be foreseen.

(b) The pedagogic factors: Here consideration has to be given to quite a number of parameters, such as the normal period of utilization of premises, the pupils' weekly timetable and breakdown by subjects, staff teaching timetables and teachers' levels of specialization; the possibility of 'double shifts' for pupils, the possibility of a variety of courses being offered by the school, for different types of final examinations, vocational and technical training courses, etc.; the size of pupil-groups (usually laid down by the regulations) working together; any particular limitations, or flexibility, arising from the use of new technology or television, etc.

An attempt has to be made to fix the optimum size of school at each level of the system, this being the size which affords at the same time the best possibilities for management and administrative control for the human character of the school and for the full utilization of premises and staff.

This optimum being fixed, a decision has to be taken on a minimum and a maximum in order to take care of the various situations prevailing but also to set limits which theoretically are not to be exceeded.

(c) The geographical factor: This involves looking into the possibilities for children to get to the school on foot or by personal means of transport (distance involved, existence of roads and of any obstacles), by using existing passenger services, by setting up specialized transport facilities, by setting up boarding and semi-boarding facilities.

It is expected that whoever looks into the working of these factors will be well acquainted with the localities of pupils' homes.

(d) The economy factor: This means an examination of the lowest financial cost after the decision on optimum size has been taken and will lead to cutting out schools that are under-utilized, schools with a high percentage of boarders, etc.

(e) The social factors: To be analyzed in the light of the outlook for a reduction in the regional disparities in the matter of schooling or disparities as between social categories, the foreseeable strength of resistance to schooling, for girls for instance, etc.

(f) The political factor: Ideas on how the school and its catchment area should be organized may have to play second fiddle to criteria of a purely political nature, as, for instance, the wish for the civic and cultural unification of the various ethnic groups inhabiting a country by means of the general application of a system of secondary boarding schools for children from all parts of the country.

III. DIFFERENTIATING THE PROBLEMS ARISING BY LEVELS AND TYPES OF EDUCATION

All the factors that have been mentioned have to be taken into consideration for each type of school, account being taken at the same time of the characteristics peculiar to each level of education.

(a) Primary (or elementary) education Here the main characteristics are the following:

- the usually compulsory nature of the schooling provided, with a direct link to demography;
- the adaptability of the teachers, making one-class schools possible.

Usually, the aims of the school map are:

- to cut out classes with inadequate or excessive number of pupils, with their impact on unit costs and standards of teaching;
- to set up schools with several classes, three at least, for the purpose of improving materials and pedagogic performance.

(b) General secondary education (with first and second cycles combined or separate):

- in theory, the aims of the education offered are laid down in the plan, including the participation rate to be achieved;
- the school map must endeavour:
  : to equalize supply as between the regions;

  : to set up teaching units of an optimum size so as to guarantee adequate diversification (course options) without excessive costs being incurred;

  : to keep down the proportion of boarders.
- it is here that the problem of reallocating pupils is met with at its acutest.

(c) The various types of higher education

- These are most frequently institutions with vocational purpose and recruitment of a national character and any criteria on where they are located are of minor importance;
- Nonetheless, here also, an attempt must be made to afford a certain equality of supply regionally by increasing the number of institutions when enrolments justify it;
- In deciding where institutions of higher learning are to be located, consideration must be given to the boosting effect they can have on the economy of a region.

LECTURE № II

TANZANIA EDUCATIONAL POLICY, PLANNING & ADMINISTRATION(1)

by

N. Mugogo

'If everything else is done, and planning fails, all fails'(2)

1. INTRODUCTION

According to the 1978 population census, Tanzania has 17.4 million people and covers 886,000 Kms^2 of land. 96 per cent of the population lives in small family holdings in Ujamaa villages in rural areas. Life expectancy averages 50 years, and about 46 per cent of the population is less than 15 years of age.

Since independence (1961), Tanzania has turned to education with an increasing conviction that human resource development forms an integral part of national development. Indeed, Tanzania has embarked on a unique social experiment. While other nations have followed similar paths, there is perhaps no other nation in the developing world today which has placed so much faith in or expects more from the education of its people. Consequently, education has evolved not only to provide skills for the modern sector, but also to mould the economic and political institutions of the entire nation.

In this paper, I wish to present some of the issues and problems of educational policy, planning and administration in the light of current excitement on the Tanzanian educational scene.

2. TANZANIA DEVELOPMENT STRATEGY

To most countries the world over, there is an unceasing emphasis on a planned approach as a basis for bringing about change, be it for spectacular improvement or innovation in the state and efficiency of technology in the service of enhancing human life, with the ultimate objective of improving living standards. The determination which has characterised planned efforts in this direction has given vent to the acknowledgement of planning as a basis for developing full potential of man as a fundamental agent of change and development.

Educational policy in Tanzania has been consciously geared to the building of an egalitarian society and the achievement of basic educational needs. There has therefore been an emphasis on mass-oriented education as distinct from the élite-type education. Any discussion of Tanzania's educational policy, planning and administration has, therefore, to take account of the broader context of the national objectives. These broad national objectives include the Arusha Declaration, Policy of Self-Reliance and Rural Development, each of which will be tackled in the following paragraphs.

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(1) The views expressed in this paper are those of the author, N. Mugogo, and should not be assumed to be those of the Ministry of National Education or those of the Sectoral Planning Department.

(i) The Arusha Declaration

The Arusha Declaration, enunciated in February 1967, was a declaration of the political strategy on which the development of Tanzania was hence to be based on the great road towards creating a socialist nation. Its basis is the notion that there should be no exploitation of one man by another, and that one man should not be allowed to acquire a lot of wealth before the other have something basic to live on. Consequently, all the major enterprises were nationalized and are the property of the State.

(ii) Self-reliance

Self-reliance is the policy which encourages people to depend on their own efforts and resources for development and that outside resources should be used only to supplement those efforts.

(iii) Rural development

Since over 90 per cent of the population lives in rural areas, and the main export earner is agriculture, the government puts considerable emphasis on the developement of the rural sector.

Tanzania's First Five-Year Development Plan (1964-1969) focussed on rapid economic growth, and gave top priority to self-sufficiency in skilled manpower by 1980, which called for a comprehensive education system for adults and children as soon as financially possible. Following the Arusha Declaration in 1967, President Nyerere sharply criticised élitism, isolation from rural areas and lack of practical experience in formal education. He then laid down guidelines for reform in his policy of "Education for self-reliance" (ESR). Priorities then shifted to favour basic education for the entire population. The education content was to be aimed at greater productivity in the rural environment. To this end, farming and practical subjects were introduced in schools so as to become revenue-producing and better integrated into the community.

The Arusha Declaration and ESR supplied the conceptual foundations for the education aspects of the Second Five-Year Plan (1969-1974). Originally, universal primary education (UPE) was to be achieved by 1989(1). The government and local organizations were required to develop adult and non-formal education programmes. In this context, the primary school was to become a "community education centre", i.e. a focal point for meeting the educational needs of the whole community rather than a detached institution to be used solely for the education of children. In addition, a national literacy programme was launched to eradicate illiteracy. Despite this focus on UPE and mass-oriented education, previous manpower goals were not abandoned. Secondary education was to be expanded only to the extent justified by manpower requirements and the target of reaching self-sufficiency in skilled manpower by 1980 was retained. The ruling party (CCM), then the Tanganyika African National Union - TANU) met in Musoma in November 1974 to review the successes and failures of Tanzania's education system. The resulting Musoma Resolution recommended that UPE be achieved by November 1977. It also recommended that university candidates engage in two years' work experience after one year of compulsory national service scheme. In addition, they should recieve satisfactory evaluation from both their employers and the Party, before being admitted to the university. Other recommendations stressed existing educational policies of diversified secondary education, practical skills and self-reliance activities

The Third Five-Year Plan (1975-1980) emphasized continuation of the basic direction in education as charted by ESR and the Musoma Resolution. The stated goals of the Plan were :

(i) to enable every child of school age to have a place in a primary school by November 1977;

(ii) to change the trend of secondary and teacher education to :

  (a) place more emphasis on technical and commercial subjects so that education will be more related to the work the student will do after completion ;

  (b) introduce teacher training into secondary schools in order to enable all students who attend these schools to teach in primary schools as needed ;

  (c) and add additional places for girls in secondary schools ;

(iii) to enable each Tanzanian to read and write and functionally use this knowledge in his daily life ;

(iv) to continue the effort to achieve the goal of self-sufficiency in qualified and competent local manpower by 1980.

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(1) The UPE objective was advanced to enroll by November 1977, 100% of those children between 7 and 12 years in Nov. 1975, plus all children reaching

The Fourth Five-Year Plan (1981-1985) indicates that the basic direction in education for the current planning period remains similar to the Third Plan. The main emphasis, however, is consolidation and rehabilitation of the education system at all levels. In addition, secondary education will no longer be expanded according to the manpower requirements only, but will be determined by both the availability of resources and social demand for this level of education.

3. EDUCATION STRUCTURE AND ADMINISTRATION

The structure of the formal education system consists of primary education (Standards 1-7), lower secondary education (Forms 1-4), followed by a two-year pre-university course (Forms 5 and 6) and tertiary education provided by the University of Dar-es-Salaam. This basic structure is supplemented by formal and non-formal specialized training programmes under a variety of Ministries, such as : Post-Primary Technical Centres (2 years), Folk Development Colleges (3-9 months), Vocational Training Centres (1 year and apprenticeship), Technical Colleges (3 years), Commercial Colleges (2 years) and Accountancy Training and Management Institutes (1-2 years). There is no fee charged at any level of the formal education system.

Management of the formal education system is exercised by several Ministries and the regions. For instance : the Ministry of National Education is responsible for the operation of secondary schools, colleges of national education (CNEs) and technical colleges. The Ministry of Finance is responsible for planning the resources needed for economic and social development in general. The Ministry of Manpower Development is responsible for manpower development and allocation within the civil service and parastatals. The regional administrations are responsible for primary education.

Administration at various levels, e.g. national, regional, district, divisional and ward/village, of the formal education system is decentralized in accordance with the Decentralization of Government Administration Act of 1972. The key official in the education administrative structure is the Regional Education Officer. He is responsible administratively to the Regional Development Director and professionally to the Ministry of National Education. He is assisted at the regional level by education officers for primary school inspection, adult education and the supplies and logistics services. At the district level there is a similar structure with a District Education

Officer administratively responsible to the District Development Director and professionally to the Regional Education Officer. He is also assisted at the district level by education officers for primary school inspection, adult education and supplies and logistics services. At the level above the village, schools and adult education activities, there is a Divisional Education Officer responsible for both primary and adult education. Each primary school has a Head Teacher and each ward (a cluster of about five villages) has an Adult Education Officer. Secondary and teacher education are administered directly by the Ministry of National Education which appoints heads or principals. Since 1978, Tanzania has established a regular programme for the training of various levels of education management personnel mentioned above. Such training is offered at the Management Training for Educational Personnel Institute (MANTEP) located at Bagamoyo, 43 miles from Dar-es-Salaam.

4. INTEGRATION OF NATIONAL OBJECTIVES INTO THE EDUCATION SYSTEM

It is virtually impossible to plan for an education system without clear interpretation of national goals and objectives. The broad national goals and objectives need then to be translated into educational goals which, in themselves, are also global. It is the foremost duty of the planner to translate the broad educational goals and policies into specific educational programmes and projects. For instance, from the policy of ESR in Tanzania, we designed the UPE programme, Adult Education Programme, the Secondary School Diversification Programme and the school/college improvement/Rehabilitation Programme (KUE).

It should not, however, be understood that education plans are only developed from specific directives from the Government, the Party or educational authorities. Educational planning must take into account special issues and problems arising from the inadequacies of the education system itself as an organic and dynamic system. For instance, the expansion of an education system may lead to a number of problems which have to be taken care of in the process of planning the development of education. For example, the disparity in participation between boys and girls, the disparity in the distribution of educational institutions among regions, the high drop-out rates, the unemployed educated people as a result of the rural-urban exodus, the social demand for education (e.g. from primary to secondary school), the very high costs for higher education. In short, the education system as a dynamic force creates a lot of critical problems which have to be contained in educational plans to avoid unnecessary educational crises.

Therefore, in order to chart out a rational plan for the development of an education system, a planner has to know what discernible forces in the recent past are likely to affect the future. In other words, it is of utmost importance to diagnose past trends in the educational development process in order to project for the future. This can be illustrated, for example, from the case of the narrowness of the secondary education sub-sector in Tanzania. As a result of the UPE program, the transition ratio from primary to secondary education will drop from 2.6% this year (1982) to slightly below 1% in 1984 if nothing is seriously done now in terms of expanding this level of education.

The planning process involves the use of a vast range of techniques, which in developed countries would mean frequent use of the computer. However, for Tanzania, as I would imagine would be the case for some other developing countries, it is important to stick to the kind of tools and techniques readily and easily available in our countries. The most important of these, for practical purposes, are for example :

(i) statistics : on enrolments
on the teaching force
on physical school facilities
teacher-student ratios
unit costs per student ;

(ii) research findings ;

(iii) reports from schools and several other feedback accounts from educational institutions concerned, i.e. the use of both in-built and summative evaluation.

5. PROBLEMS OF IMPLEMENTATION

Although Tanzania has achieved remarkable success in both adult and primary education, there are a number of problems which I hope this course will help to find solutions and to which I should now turn.

The gravest problem in adult education is that, although we have achieved a literacy rate of 79% (December 1981), for reasons we have yet to identify, there seems to be a loss of initial drive, zeal and appeal for adult education. between 1970 and 1977, Tanzania was able to achieve 69 % literacy. Between 1977 and 1981 (the year when recent evaluation has been done) we have been able to reach 79 % literacy, when actually the intention was to suppress illiteracy to 10 % by December 1981. Another problem for adult education is the lack of attendance at adult education classes, mainly because the people are involved in doing something else due to the difficult economic situation the country is facing.

As for primary education, we are faced with the problem of declining quality because of the shortage of books, school materials and teachers. Another is the problem of declining enrolments in Standard 1. Furthermore, during the last four years there has been a shockingly high drop-out rate of 5.4% (the national average is 2%). We also have the problem of large numbers of children aged from 7 to 12 years still being left out from admission to Standard 1. To worsen matters, there are the other two equally serious setbacks in primary education. First, production activities are not given due attention during the final examinations. Consequently and closely connected with this, is the fact that primary education is not terminal as originally intended. Tanzania has what has been called the "paper qualification or certification syndrome" (diploma disease). As a long-term solution to these problems, it is proposed that in-service training for teachers be continued.

At the secondary school level, there is a problem of both quality and quantity in its provision. Qualitatively, there is still a shortage of enough funds to buy adequate school materials and equipment, including textbooks, particularly for science and mathematics subjects. There is also the problem of the shortage of teachers of science and mathematics.

Quantitatively, secondary education is an acute problem. This level of education has not been expanding as fast as the primary education level. As a result, so few Standard VII leavers obtain places in Form I that it is frustrating to the pupils themselves, the parents as well as teachers. Appendix 1 shows the number of Standard VII leavers and the respective intake into Form I from 1961 (at independence) to 1981.

Furthermore, the diversification of secondary education programme has proved to be both expensive and difficult to implement. It seems necessary and urgent that serious review and rethinking be done so as to save the present deteriorating situation.

Finally, the dependence on foreign loans/credits and grants hinders our capacity to look into the future with certainty and confidence. Corrective and urgent action has to be taken immediately.

In this paper, I have tried to present the Tanzania educational policy, planning and administration. I have not tried to say the Tanzanian educational policies, practices and administration are ideal for all developing countries. And I hope that I have not given the impression of smugness in my desire to show the efforts we are making to meet the needs of the Tanzanian situation. We are still working out and refining these policy objectives, and do not present to have all the answers. Tanzania is a country which is in great need of skilled manpower and is very short of finance. The Arusha Declaration, socialism, ESR, the Musoma Resolution, are no immediate panaces for all the familiar problems which face societies, but are a guide to a type of society which we aspire to create. We planners, administrators and policy-makers may analyse various social, economic and political issues, but true analysis and evaluation of those issues will be done by our own people from all walks of life, for it is their future which is at stake.

APPENDIX 1.

STANDARD SEVEN LEAVERS AND INTAKE INTO FORM I IN PUBLIC SECONDARY SCHOOLS

(1961 - 1981)

Year	No of Std. VII/VIII leavers	No of pupils selected into Form I	
		Number selected	% of those who sat for examination
1961	11,732	4,196	35.8
1962	13,730	4,810	35.0
1963	17,042	4,972	29.2
1964	20,348	5,302	26.1
1965	29,367	5,942	20.2
1966	41,083	6,377	15.5
1967	47,981	6,635	13.8
1968	58,872	6,989	11.9
1969	60,545	7,149	11.8
1970	64,630	7,350	11.7
1971	70,922	7,780	11.0
1972	87,777	7,956	9.1
1973	106,203	8,165	7.7
1974	119,350	8,472	7.1
1975	137,559	8,680	6.3
1976	156,144	8,659	5.5
197	169,106	8,706	5.1
1978	185,293	8,720	4.7
1979	193,712	8,908	4.6
1980	212,446	8,913	4.2
1981	357,816	9,178	2.6

LECTURE Nº III

PLANNING OF LITERACY AND POST LITERACY PROGRAMME IN TANZANIA

by

P. Elinawinga

President Nyerere says "The educational system introduced in Tanzania by the colonialists was modelled on the British system, with heavier emphasis on subservient attitudes and on white collar skills.....it was based on the assumptions of a colonialist and capitalist society. It emphasized and encouraged individualistic instincts of mankind, instead of his cooperative instincts. It led to the possession of individual material walth being the major criterion of social merit worth". Nyerere in Freedom and socialism p. 269.

After Independence, Tanzania had to change its education system and content as to serve the socialist aspirations. The Arusha Declaration elaborates the aim of post Independence education, that it is "To see that the government mobilizes all the resources of this country towards the elimination of poerty, ignorance and disease". Nyerere in Freedom and Socialism pp. 232.

It is from the above outlook we find that post Independence education has to prepare peasants, and workers to get control of the major mean of production, distribution and exchange in order to combat poerty, ignorance and disease.

Literacy skill is the first stage in acquiring education. An illiterate nation is always entangled in the calamity of underdevelopment, exploitation and degradation. To escape from such a dialemma, literacy, post literacy and universal education is indispensable.

Literacy programme started early after World War 2; in 1945 to keep busy the ex-army conscripts. By 1949 literacy centres were operating under the department of social Welfare which were mostly based in Urban areas.

As illiteracy is part and parcel of capitalist mechanism of exploitation, by Independence, illiteracy rate remained at above 75%. According to some reports, in 1965 Adult Education, both literacy and post literacy classes stood at 7,257 with a total of enrolment of 541,562 adults, of whom 206,214 were men and 335,348 were women. Over and above these, there were 440 follow up classes (English and Arithmetics) with curriculum on Home economics.

In 1965, the Ministry of Community Development and National Culture became the Ministry of Regional Administration and Rural Development inheriting the functions of the later.

In July 1969, Adult Education was thus transfered to the Ministry of National Education with an enrolment of about 600,000. Indeed at this early stage Adult Education lacked the sense of direction due to the fact that, it had no clarity, and therefore lacked specific goals and objectives. Precisely it had no ideology and that's why Nyerere tried to distil the objectives of Adult Education by saying....."first we must educate the adults. Our children will not have an impact on our economic development for five, ten or even twenty years. Adult have an immediate use now". The above statement was said by Mwalimu when introducing the first five year development plan: 1964-1969.
Following his speech Adult Education became part and parcel of rural development. Literacy was supposed to facilitate agriculture where they could learn better farming techniques in order to boost productivity.

TANU, (the former political party) committed itself to human development through education when it undertook the campaign to eradicate illiteracy as a policy in the Arusha Declaration. The Arusha Declaration is based on the development of man, and Adult Education is a tool of this development as Mwalimu stresses "....."People can not be developed, they can only develop themselves. Man develops himself by what he does, by making his own decisions and increasing his own knowledge and ability and by his full participation as an equal in the community he lives in..... a man is developing himself when he improves his education on whatever he learns about which can help him understand the environment he lives in, and the manner in which he can change and use his environment in order to improve himself".

The second Five Year Development Plan took rapid steps on adult education between 1969-70. We had already realised that our development depended on mass education. President Nyerere made two broadcasts for New Year messages to the nation, both an adult education laying down the policy of adult education programme as component of Socialists transformation he said that, the coming twelve months must be Adult Education Year and we must give this work a very high priority - Nyerere: New Year Speech, 31 December, 1969. Mwalimu said the main 3 objectives of Adult Education are:

Therefore Tanzanians plan by themselves.

Planning at the central level:

Planning at the headquarters comes under the Director of Adult Education who is assisted by 5 sections: namely the design and coordinating section; Functional literacy, workers education, Folke development colleges, and Adult Education Printing Press.

Planning in the Regions:

As stated above, the Ministry deals with the planning and administration at the national level.
The regions have power to plan coordinate and implement literacy and post literacy programmes in their jurisdiction. In this aspect they must plan for:-

1: Census of the adult learners
2: Establishing literacy and post literacy centres;
3: Distribution of equipment
4: Training of literacy and post literacy teachers.

Managerial Structure of Literacy and Post literacy Programme

MINISTRY OF NATIONAL EDUCATION
  Adult Education Directorate

REGIONAL EDUCATION OFFICER
  Regional Adult Education Coordinator

DISTRICT EDUCATION OFFICER
  District Adult Education Coordinator

DIVISIONAL ADULT EDUCATION COORDINATOR.

WARD ADULT EDUCATION COORDINATOR

SUPERVISORS OF ADULT EDUCATION
  (Headteachers of Pr. Schools)

LITERACY AND POST LITERACY
  Classes at the village level.

/Msaki:

The National Literacy Centre - Mwanza

The Mwanza functional literacy project with the assistance of UNDP and UNESCO has had the task of training literacy personnel and evaluation task. It also conducts courses on radio education, rural libraries, rural newspapers, and Home economics.

Evaluation:

Any project should encourage evaluation and research for they are tools which can measure the achievement or attainment. They are scientific methods which reveals the viability of a project. Evaluation checks the development process and gives sense of direction to the policy makers, decision makers, planners and implementers of the project.

It is from the above parameter that adult education Directorate had to form a section concerned with evaluation and research, in collaboration with the Mwanza Project, its responsibility is, :-

1: Planning research and evaluation activities on functional literacy tests; post literacy tests, folke development colleges, adult education centres, radio education, rural libraries and rural newspapers and the impact of the whole campaign.

PLANNING THE LITERACY AND POST LITERACY PROGRAMMES:

When planning literacy and post literacy in Tanzania, there are some basic aspects which are taken into consideration. First there is the National goal or the National philosophy or the sense of direction of Tanzania as a nation. Then there is the Regional, local and individual needs. Both these needs are contained in the planning of adult education in Tanzania.

In planning we decide the objectives, identify the kinds of resources available and how they are organized and utilized. Planning must show who will benefit from the programme and how training requirements are met.

In Tanzania, adult education is part and parcel of the national development plans, because illiteracy programme is taken as a pre-requisite of the development of the entire population. That's why the 1st and the 2nd five Year Plan Development took adult education as one of its priorities. The new party constitution also gives adult education programme a support as one of the Party's activities.

The planning process of adult education in Tanzania is a two system. Some of the plans (i.e. materials - transport and personnel) come from the centre, while most of the planning process starts down at the root level -(village). Under the decentralization system and village government structure the entire population participates in planning, implementing and evaluating adult education programmes in one way or another.

F.D.C. offer these courses:
1: Political Education
2: Political Economy
3: Domestic Science
4: Accountancy and Management
5: technical Education
6: Culture
7: Leadership

The courses are heavily practical. At present there are 51 colleges in different districts. The plan to have an F.D.C. in every district. Each college is headed by a university or diplomate graduate. The participants are selected and sponsored by villages, Ministries and parastatals.

The rural Libraries: Started in 1969 as a supporting programme, aiming at maintaining the knowledge and skills attained by the neo-literates. The libraries are small each having about 500 different titles. We have distributed more than 1,500,000 copies in about 8,000 villages.

The rural newspaper programme:

The programme became operational in 1974 in thefour Lake regions. It was designed to play an integrative role in a rural communication system in liaison with theradio education, rural libraries and discussion groups. There are already three zonal rural newspapers at present, namely "Elimu Haina Mwisho - Life long education, Self Development - (Coaster) Lets educate ourselves (Northern) continue learning - (Eastern) Our education - (Central) Our light - (Highlands) Lets learn - (Southern) Education is like the sea - (Western) and get the Knowledge (Zanzibar). The average circulation is 50,000 a month and sells at a token price of cents /=20.

The Institute of Adult Education

Offers evening classes in various subjects and diploma course on Adult Education. The Diploma course was launched in 1969 as a first full time course for professional adult educators. Its curriculum contains History and Philosophy of Adult Education, planning and Administration of Adult Education learning methods, The psychology of adult learner rural development, workers education and Political Education.

The University of Dar es Salaam

This highest Institution of learning offers a degree course on Adult Education. About 20 students graduate from this Institution every year and are absorbed as adult education personnel levels, also as teachers of adult education in Secondary Schools colleges of National Education and Folke development Colleges.

Preparation of reading materials both printed and non-printed media in different stages - 5, 6 and 7 has been prepared in a way that the neo-literate can pursue the course without straneous effort in different subjects from lower to higher stage of learning.

The following eleven books were prepared for post literacy programme; They are; Political Education; Home economics; Hygience, Kiswahili, Mathematics, Political economy, Geography, History, Crafts and English language. The method of preparing these books does not differ very much from that of preparing the primer, only that these are move national in relevance. They were written integratevely with experts from various fields and institutions of agriculture, Health, economics, Industry and the ruling Party - CCM.

Post literacy adult educators, are given short orientational courses by the regional trainers team on how to administer the post literacy programme. In most cases, post literacy teachers are the primary and secondary school teachers, also workers who are acquinted with the question of lifelong education.

Correspondence Education:

This programme was started in 1972 with the objective of helping people to improve themselves at their own choice. The courses offered by the National Correspondence Department in the Institute of Adult Education are:-

1: Kiswahili Stage I - III
2: Political Education I - III
3: English Stage I - IV
4: Geography Stage I - II
5: Book-keeping Stage I - III
6: Management III
7: Store-keeping I - II
8: History I - II
9: Maths I - II
10: Kilimo cha Mahnrage
11: Correspondence Education for the blind (Brail system)

In future we expect to offer Diploma courses through the correspondence.

Folke Development Colleges; established for the people in the rural areas. They are meant for adults who have attained literacy as to expand their education in different specialization.

Post - Literacy Programme

After Literacy what?

The question of post - literacy has not been touched by many Adult Educators. Precisely, post literacy programmes should be planned simultaneously with literacy programmes, for semi illiteracy is no better than illiteracy. In Tanzania literacy and post - literacy phases are inseparable.

Objectives:

1: To ensure retention of the attained skills and capability so that the neoliterate do not relapse in to illiteracy. In Tanzania, the target group in the literacy graduate who has attained level IV of the functional literacy programme.

2: To create a literacy and a leaning environment in the rural areas through an educational scruture which can provide learning components; for instance; rural newspapers; rural libraries, folke schools; radio listening and discussion groups; correspondence education, cinemas; mass campaign (i.e. the Cholera campaign) which are specific major bottlenecks in rural development.

3: To enable adult learner to broaden their knowledge on socio-economic, political, educational, cultural and ideological outlook so that they can cope up with the daily and morden local, national and international activities.

4: To improve the knowledge and skills of the adults in the fields of agriculture, handicraft, home economics, health, commerces, cooperatives in the sense of Ujamaa production; distribution and exchange.

5: To provide an alternative system of education (bridging system) for educational advancement for out of school youths and adults.

Participants who graduate in the literacy programme - (neo-literates) are reorganised in post literacy groups, each having the power to decide its own curriculumn. The course of study in this phase is of higher level of difficulty both in content and form, than that provided in the basic phase - literacy programme. Discussion method is encouraged to be the main teaching methodology among others.

The 3rd Literacy Test

August 1981

The 3rd National evaluation test was carried out in August 1981. This time a whole week was specifically worked for the exercise instead of a single day as in the past.

From the accumulative figure of the 1977 we found out that we had 6,099,197 illiterates an increas of 97,931; that is:

1977 = 3,790,860
1981 = 3,88,791

Why had we such an increase?

1: Villagelization

2: The youths who were supposed to get into primary schools did not do so and therefore joined the illiterate group. From the above figure therefore:-

(a) The total expected illiterate this participants who were to sit for tests were 3,524,442.

that is:- 1,400,237 males
2,124,205 Females
Total 3,524,442

(b) Those who really appeared for the tests were 3,107,506 (88%) of the total expected; that is:- 1,230,832 (35%) males
1,876,674 (53%) Females
Total 3,107,506 (88%)

Therefore, from the 1975, 1977 and 1981 national literacy tests we can learn that the total population which has now become literate is 3,122,983 = 79%. In other words illiteracy has been reduced in this temperature:

1967 was 67%
1975 was 39%
1977 was 27%
1981 was 21%

It was planned that by the year 1981 illiteracy rate should be pinned down at between 15 - 10% but the 1981 results showed us that illiteracy was reduced from 27 to 21 which is only 6%. There are many factors which contributed to this low achievement. In planning such bottlenecks must be put into consideration. The next national evaluation test is due to August 1983. his time the functional aspect of literacy programme will be tested, also post literacy programme.

Year	Males	Females	Total
1967	54%	80%	67%
1975	34%	44%	39%

The 2nd Test: 1977

The 2nd assessment of the national literacy compaign indicated that the former commulative figure of illiterates rose to 6,001,266 in 1977 - an increase of 140,829 illiterates why?

(a) Reorganization of rural Committees in to permanet villages made the idutification of illiterates adults witherto unknown, easier,

(b) Earlier ennumeration of illitarates was incurate - In view of this, better planned and intensified surveys of illiterates adults were carried out,

(c) Youths not attending school entering the illiterate adult age group, that is 10 years and above, during the period between 1975 - 1977 might have been a [illegible] contributing factor,

(d) It was expected that a total of 3,545,796 adult illiterates would participate in the 1977 tests. However the results showed that 1,036,759 males and 1,279,395 males making a total of 2,316,154 did actually participate in the tests.

- Why? they say from the field,
  - important hourneys,
  - attending funerals,
  - visiting sick relatives,
  - other participants were sick,
  - pressure of farm work, and domestic activities,
  - shortage of materials i.e papers, pencils,
  - others were not informed on the date of the test; age; eyeright; rain; double duties.

However the results were as follows:-

Level	Males	Females	Total
∠ I	81,767(39%)	129,827(61%)	211,594 (100%)
I	100,325(18%)	327,541(62%)	527,866 (100%)
II	300,716([illegible]	469,557(61%)	770,273 (100%)
III	254,102(54%)	[illegible]6,906(46%)	471,008 (100%)
IV	199,849(10%)	135,564(40%)	335,413 (100%)
Total	1,036,759(45%)	1,279,395(55%)	2,316,154 (100%)

NATIONAL LITERACY TESTS

National Literacy Tests have been administered three times, 1975, 1977 nand in 1981.

In 1975 the national literacy test was held on 12th August, throughout the country and the results were:-

Year	Total illiterates	Men	Women
1975	5,860,437 = 100%	= 44% 2,561,211	3,299,216 = 56%

In 1975 it was found out that :-

(a) we had 2,561,211 (44%) 3,299,216 (56%) women totalling 5,860,437 (100%) illiterates,

(b) the followings registered for literacy classes
M - 2,287,921 F= 2,068,062 Total 5,184,982,

(c) those who appeared for the tests 12/8/75 were
M = 1,738,406 F = 2,068,062 Total 3,806,468 = 73%,

(d) those who did not appear for the tests were
M = 549,515 F = 830,999 Total 1,380,514,

(e) those who did not register for tests were 675,455,

(f) the performance ine test showed that 1.40 m.,
    1. 1.35 m. qualified (35%) for level II,
    2. persons or 37% qualified for level III & IV,
    3. 1.05 m. = 28% qualified for level I and below.

Year	Males	Females	Total
IV	306,544 =(53%)	268,332 =(47%)	574,876
III	416,403 = 50%	412,706 = 50%	829,109
II	579,485 = 43%	768,541 = 57%	134,826
I	273,485 = 42%	372,368 = 58%	645,793
∠ I	162,489 = 40%	244,175 = 60%	406,664

On the basis of the above achievement for the eraduction of illiteracy, it was estimated that the illiteracy rate had been reduced to 39% within the population of 10 years and above, as shown

1: To shake ourselves out of resignation to the kind of life Tanzanian people lived in the past.

2: To learn to improve our lives.

3: To learn to understand our national policies of socialism and self reliance.

As to implement the call, Mwalimu directed that six districts should wipe out illiteracy by 9th Dec. 1974. These distiricts were Ukerewe Mafia, Masasi, Kilimanjaro, Pare and Dar es Salaam. Mafia is a small Island of about 17,000 but of a closed culture. Pare distirct is famous for its communal activities; Dar es Salaam has many literate workers and it was hoped that if they were utilised properly the campaign could be a success. Mas mobilization by the Party and government officials through adult education committees became the cornerstone of the campaign. By the end of 1971, the campaign in the six districts showed that Mafia had registered 8,549 illiterates achieving 100% enrolment: Ukerewe: 35,843 (99.6%) Pare 24,121 (100%) Kilimanjaro 45,466 (97%) Masasi 45,364 (89%) and Dar es Salaam 28,306 (28.3%).

From early 1970 Tanzania had stepped up efforts combating illiteracy. with no reservation. Through out the country, literacy campaign was associated with liberation and work.
The 1971 TANU biennial conference directed that all literate people should participate fully in adult education programmes. Above all, resolution (22) directed that "Plans should be made so that Tanzania completely eradicates illiteracy by 1975; it should be a normal routine to find adult Education classes in all places of work, and that ways and means should be found to attain universal primary education.

It is from the above directives that the Ministry of National Education had to prepare concrete guideline policy for the entire country. It was estimated that there were about, 5.2 adult illiteratos according to 1967 census who were to be educated in two phases in the following areas:-

1: The six districts challenged by the President
2: All Ujamaa villages. (by Dec. 1972)
3: The four lake regions (by Dec. 1972)
4: The rest of the 16 regions had to work out plans in four phases to

The nation wide enrolment progress between 1971 - 1977 shows that:-

YEAR	ENROLMENT	YEAR	ENROLMENT
1970	261,369	1974	3,303,103
1971	908,351	1975	5,184,982
1972	1,508,204	1976	5,255,560
1973	2,989,910	1977	5,819,612
		1981	6,099,197

b) Criterion of measurement of the campaign:

The assessment of the campaign included, total enrolment; participation in various primers, patterns of attendance; implementation of the functional aspect; literacy teachers; functionality of the committees.

This assessment was administered three times on a nation wide basis. In August 1975, August 1977 and August 1981. The tests were divided into four stages within the difinition of functional literacy in the Tanzanian context. Those who achieved level III and IV in the 3rs combined were to be considered literate graduates.

LECTURE No IV

THE CHOICE OF STATISTICAL UNITS AND PARAMETERS

by
F. Caillods

The purpose of school mapping is to set up a school network which will meet in the most efficient and equitable way possible the future demand for education. Regardless of the objectives chosen, be they equal opportunity of access to education, improved teaching-learning conditions, or more efficient use of human and physical resources (teachers and buildings), any proposal concerning the future organization of supply should be an improvement on the present situation. The first step consists therefore in examining the present situation and analysing how the present school map meets the objectives of the educational policy. This very important stage of diagnosis will allow the identification of existing imbalances in geographical distribution, and in pupils' participation, teaching and learning conditions and in the location and utilization of buildings. It will also serve as a basis for the preparation of the future school map.

In preparing the diagnosis, it is necessary to define the statistical units on which the analysis will be based, to select the indicators to be studie and finally to collect the statistical data required.

It is obvious that in the case of compulsory education, it will not be possible to undertake an in-depth study of all the schools in the country ; it will be necessary therefore to select one or two pilot regions where the methodology will be elaborated before being be applied to the whole country.

I. Choice of pilot region

Since the aim of the pilot exercise is to define and test a methodology which can then be used throughout the whole country, the region selected should represent as far as possible the variety of situations and types of problems to be found in the country. Both with regard to the development of the educational system and the features of the existing school service, and with regard to the type of relief, settlement, communication network and economic activity, the selected region should be as close as possible to the national average. If the country is characterized by two very different types of situation (economic, demographic and educational), it may be necessary to conduct two pilot studies ; large urban centres should be studied separately.

II. Choice of statistical units

The choice of the statistical units will very much depend on the objectives of the diagnosis:

1. If the objective is to highlight the inequalities in pupils participation or in their promotion opportunities the statistical unit chosen will obviously be the pupil or the group of pupils. According to the type of inequality to be stressed, different groupings of students should be used. The following grouping criteria can be mentioned.

- sex (is there lower school participation of girls)
- age
- grade and educational level
- ethnic group
- socio economic group
- home residence area
- any combination of these criteria (age/sex, sex/grade, etc.)

The incomplete data on ethnic and socio professional group might be an obstacle but if these data are needed, ad hoc surveys should be organized.

2. If the emphasis is put on disparities in teaching-l[illegible] conditions (staffing ratio/equipment available) the statistical unit to be [illegible]ed is the school. At the secondary education level, it might be possible [illegible]alyze the situation separately for each school - if they are not more than 10 in number. At the primary education level, the number of schools is so large that some grouping is necessary. According to the country, the choice of the criteria for the grouping will be more or less easy. The following criteria may be used:

(a) Grouping of schools by size; These seems to be a definite correlation between the size of a school and the pupil/teacher ratio, the type and quality of didactic material available, etc. This classification proves very useful, whatever other grouping criteria are used.

(b) Grouping by administrative units. Most of the information will be available according to administrative units. This is the case for example for demographic data. If political administrative and school administration divisions do not coincide, some adjustments of boundaries and data (population) will have to be made.

This is a very convenient grouping if they are not too many administrative units in any one region (not more than 10) and if they are sufficiently homogeneous as far as relief, population density and school characteristics are concerned.

(c) Regrouping according to the catchment areas of secondary schools. This is particularly relevant if one is to study the transition to secondary education and the actual supply of secondary education. Also it has been often proved that the existence of a secondary school nearby influences the promotion and drop-out pattern of pupils in primary schools.

(d) Regrouping into homogeneous geographical zones. Zones are identified in which schooling characteristics are very similar while the same characteristics differ very much from one zone to another. Each zone is defined as a regroupment of administrative units on the basis of various criteria:

- demographic factors: identifying towns and big villages on the one hand, low density areas on the other hand.

- geographical and relief factors: mountainous areas or deserts should be distinguished from the plains.

- density of the road network. Social infrastructure. Zones well served by the road system are likely to have different educational characteristi than those where communications are fairly difficult.

- educational indicators: For example, apparent enrolment ratio, transition ratio to the next educational level. The actual location of secondary schools and their catchment areas indicate the zones where transition ratios to secondary education and enrolment ratios will be highest.

To each criterion may correspond a somewhat different dividing-up of the region. Certain analyses will test the various solutions and allow for adjustment. At the end of the iterative process, educational indicators should be as homogeneous as possible within each zone, and as heterogeneous as possible between zones.

According to the size of the region, the number of zones selected can vary between 5 and 12 maximum, but these zones should not be too small in terms of the number of schools and pupils.

(e) In big cities, schools will be grouped by blocks or section.

III. Choice of indicators (or parameters) to be used in the diagnosis

When doing the diagnosis on the educational development of the region, it is necessary to select the indicators on which the analysis will focus. These indicators will deal with schooling characteristics and also with demographic, institutional and environmental (social, economic, geographic characteristics . The number of parameters to be selected in the school mapping process will depend very much on the result of the pilot study. In the pilot phase we should analyse as many indicators as possible in order to select the major ones which will later be used for the preparation of the school map on a national scale. The list given below is neither definite nor limitative. Each country should adjust it for its own needs, adding some indicators or suppressing others.

List of indicators

(1) Environment

- Relief : deserts, mountains, rivers)
- Road network (specifying the roads which can be used all year long)
- Train network
- Habitation pattern and social data (development centres,. poles of attraction, secondary centres)
- Economic data : enterprises, mines, dams, tourism center, etc.

(2) Demographic parameters

- Total population and for the various towns and villages
- Population density
- Breakdown by age, sex, religious group
- Migrations
- Population growth

(3) Institutional parameters

- Structure of the educational system
- Administrative responsibilities
- Admission and selection procedures
- Financing system (purchase of land and construction of schools, canteens, school transport, subsidies to private schools, fees in private schools, boarding systems)
- Minimum size of schools (maximum), procedures for closing and opening schools)
- Other norms.

(4) Educational indicators

(a) enrolments

- growth of enrolments by sex, age
- admission rate, promotion rate, repeating rate
- drop-out rate
- distribution of enrolments, according to village of origin, distance walked, time of access
- distribution of enrolments by type of school (public, private)
- percentage of day pupils and boarders
- distribution of enrolments according to age, sex, grades, linguistic or social groups
- enrolment ratio by sex, age, zones, districts, linguistic or social groups
- single shift, double shift, multigrade classes, one grade classes.

(b) Personnel

- teachers (distribution by level of qualification, specialization, position on the salary scale, teaching load and sex ; pupil/teacher ratios)
- service and administrative personnel : function, qualification salary, pupil/personnel ratios.

(c) Curriculum

- number of hours of teaching for different grades
- time schedules, average size of groups

(d) Buildings and equipment

- geographical location
- ownership of the building (rented, state-owned, etc.)
- number of general and specialized classrooms
- surface area of the playground and available land
- teaching area per pupil, non-teaching area per pupil
- existing facilities (water, electricity, etc.)
- analysis of equipment
- utilization rates -(-secondary schools)

(e) Costs

- recurrent costs (teacher salary costs, personnel salary costs, maintenance costs, equipment costs, canteen costs, etc.)
- school transport costs
- building costs.

IV. DATA COLLECTION

1. Environment data and maps

- Relief maps. Maps showing the transportation network, rivears, economic activities - Map of the population density. Most of these maps should be found at the central level. They will be completed at the local level.
- Maps showing the location of schools. Each school should be carefully located on the map and given a code number. A field trip might be necessary.

2. Demographic data will be found at the Census bureau, or in a National demographic Institute.

If no population data are available a demographic survey can be carried out in each village,or the number of registered deaths and births collected

3. Educational data

- Some information will be available at the Ministry of Education, at the district level
- Some information will only be available at the school level and a survey amongst pupils, teachers, headmasters should be reorganized.

This is likely to be the case for

- information on the site and condition of school buildings
- walking distance to the school and time taken, home residence of pupils is a useful information for identifying the catchment area of the school
- linguistic and social origin of pupils
- Costs

A separate questionnaire should be built for primary and secondary schools. Generally speaking one should try to avoid the duplication of surveys, by using as much existing information as possible.

Answers to questionnaires should be cross-checked during a field visit.

Attached is a questionnaire on school facilities.

SURVEY ON KILOSA DISTRICT PRIMARY EDUCATION & LITERACY COURSES (Oct./Nov. 1981)

I SCHOOL IDENTIFICATION:

1. Name of the school: ______________________________

2. Location: Village: ______________ [illegible]: ______________

Division: ______________ District: ______________

3. STATUS Public Govt: ______________ DDC: ______________

Private TEC: ______________ CCT: ______ BAKWATA ______

AK : ______________ - : ______ Other ______

4. School Code: ______________

II PRIMARY EDUCATION:

5. 1981 enrolment

	STD I	STD II							STD V	STD VI	STD VII	TOTAL
			$\frac{1}{2}$ day	Full day	Total	$\frac{1}{2}$ day	Full day	Total				
Total enrolment (March)												
Boys												
Girls												
Repeaters												
Number of Streams												

6. Attendance on the day of the Survey

	STD I	STD II							STD V	STD VI	STD VII	TOTAL
			$\frac{1}{2}$ day	Full day	Total	$\frac{1}{2}$ day	Full day	Total				
Number of pupil attending day of Survey (1)												

(1) If attendance on the day of the survey was exceptionally low, take average attendace over past months.

7. Distance walked by pupils to come to school.

STD	Stream (Number)	Number of pupils according to distance between home and schools				TOTAL
		less than 2km	2 - 4 km	4 - 6 km	more than 6km	
I	1					
	2					
	3					
II	1					
	2					
	3					
III	1					
	2					
	3					
IV	1					
	2					
	3					
V	1					
	2					
	3					
VI	1					
	2					
	3					
VII	1					
	2					
	3					

8. Distance between the school and the next primary school (in km) ______

Distance between the school and the capital of division (in km) ______

Distance between the school and the district capital (in km) ________

9. TEACHING LOAD OF TEACHERS

NAME OF TEACHER	Training or Educational level	Subjects taught or class where he is teaching	Number of Periods taught Per week	Number of Years of Experience	NUMBER OF SESSIONS (AND LENGTH OF SESSION) TAUGHT PER WEEK FOR LITTERACY AND POST LITTERACY COURSES											
					JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOV.	DECEMBER
Mr. A Juma	III(c)	Std I&II		14	2(2b)				2(2b)							

10. TEACHING PREMISES = Shift(if any), 1st Shift: from———————— to————,No. of Streams Concerned:————————————

2nd Shift: from———————— to————,No. of Streams Concerned:————————————

10. (a) General Classrooms

Classroom (Number)	(1) Grade & Streams Concerned	Rooms			Building Materials		(2) State				Number of seating Places	(3) Comments
		Length	Width	Surface area (m^2)	Walls	Roofs	Very bad	Bad	Regular	Good		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												

(1) Please, indicate here the classes without classrooms (under the tree):____________

(2) Very bad=need reconstruction, Bad=need heavy repair, Regular=need normal maintenance, Good = need no repair.

(3) Comments in the classroom = no window, water running in, etc.

IO (b) OTHER PREMISES

Specialised classrooms (specify)	Number	Area in m²			Building Materials		State			
		Length (m)	Width (m)	Surface (m²)	Walls	Roofs	Very bad	Bad	Reg.	Good
I.										
2.										
3										
Headmaster's Office										
Storage room (m)										
Teachers house (s)										

II. SERVICES AVAILABLE IN THE SCHOOL

Item	Yes	No	Specify
Water			
Electricity			
Latrines			
First Aid Box			
School Lunch			
Field Sports			
Agriculture Land			
Land available for exp.			
Library			
Other specify			

I2. PRODUCTIVITY WORK IN THE SCHOOL

Type of Activity: ____________________

Products produced: ____________________

Income raised in T. Shs. ____________________

NUMBER OF PERIODS SPENT ON PRODUCTIVE WORK PER WEEK

STD	I	II	III	IV	V	VI	VII
Periods							

13. EQUIPMENT AVAILABLE

Standard and Stream Number		Class-room Number	Availability of Blackboard		Teachers Desk		Textbooks			Exercise Books			Pens & Pencils		
			Yes	No	Yes	No		Insuff-icient	Suffi-cient	None	Insuff-icient	Suffi-cient	None	Insuff-icient	Suffi-cient
Std I	1.														
	2.														
	3.														
Std II	I														
	2.														
	3														
Std III	I														
	2														
	3														
Std IV	I														
	2														
	3														
STD V	I														
	2														
	3														
STD VI	I														
	2														
	3														
STD VII	I														
	2														
	3														

II Post Primary Technical Education

If there is no Post Primary Technical Education organised in the school, move to question I7.

I4. Enrolment in Post Primary Technical Education

Year 1981	First year	Second
Enrolment		
Attendance (on the day of the survey (1)		
Number of Streams		

(I) If attendance on the day of the survey is exceptionally low, take average attendance over past months.

(I5) Teachers in Post Primary Technical Education

Teachers' Names	Subjects taught	Number of Periods	Educational Level or Training Level
I			
2			
3			
4			
5			
--			
Total			

(I6. Specialization given

Ist year: ____________________

2nd year: ____________________

Classroom number	Purpose (General/Lab/W/Shops)	(Specify) Equip. Available	Equipment	
			Suffi- cient	Insuffi- cient

IV ADULT EDUCATION

(A) LITERACY COURSES

I7 Litteracy courses enrolment and attendances: I978 - I98I

YEAR	Speciali-zation (specify)	Illitearates enrolled (I*)			No. of classes (Courses)	Total No. of sessions over a year	Average number who attended (I*)		
		Prima I	Prima II	Total			Prima I	Prima II	Total
I978	I								
	2								
	Total								
I979	I								
	2								
	Total								
I980	I								
	2								
	Total								
I98I	I								
	2								
	Total								

(I*) This refers to the total number of adults who attended courses each year. Adults who would have followed several courses in consecutive years should be included in each year of enrolment. Enrolment and attendance refer to enrolment and attendance to theoretical courses over the year.

I8. Litteracy Courses - Teaching Staff - I98I

Training or Educational Level	School Teacher	Pupils/ Students	Party and Mass organisation	Govt. Organisation	Rel. Organisation	Vol. nteers	Other	Total
Primary School Teacher								
Secondary Sch. College Teacher								
Below Std. VII								
Std VII								
Form I - IV								
Form V - VI								
Post Form VI								
Total								

19. Litteracy Courses; Demonstration Courses, 1981

Specialisation	Number Enrolment of groups	Number of Teaching Staff				
		School Teachers	Students or pupils	Volunteers	Govt. Officer (I*)	Total
I						
2						
3						

(I*) Specify: ____________

20. Training of Volunteers – Litteracy Courses

Number of Volunteers trained in 1980: ____________
" " " " " " ____________

Number of Training sessions a year: ____________

Length of training session: ____________

Person responsible for the training ____________

21. Availability of Teaching Materials and Equipment 1981

	Teaching Material			Exercise books			Pens and Pencils		
	None	Insufficient	Sufficient	None	Insufficient	Sufficient	None	insufficient	sufficient
Prima I									
Prima II									

22. Premises used for Litteracy Courses, 1981

Premises	Number of groups	Number of School Teachers	Hours of Teaching	Number of rooms/sites
Primary classrooms				
Private houses				
* Other Specify				
*				
*				

LECTURE Nº V

PRESENTATION OF KILOSA DISTRICT

prepared by
the Kilosa District Education Office

LOCATION

Kilosa is a district in Morogoro Region. It borders Mpwapwa District in the West, Handeni and Kiteto Districts in the North, Morogoro District in the East and Kilombero and Iringa Districts in the South. It is geographically divided into two distinctive features. In the West there are the Rubeho Mountains which range with an average altitude varying between 1000 and 2000 metres. To the East, there are the Mkata lowlands or plains, with an average altitude of 500 metres above sea-level.

Kilosa District has an area of 14,245 square kilometres, which is equivalent to 19.5 per cent of the whole Morogoro Region.

CLIMATE

In general, Kilosa District has a tropical type of climate, with isolated cases of temperate tendencies in the mountains. Rainfall ranges between 1000 mm. and 1500 mm. per annum.

AREA AND POPULATION

Kilosa District has an area of 14,245 square kilometres, of which 13,394 sq. Kms are arable land. As per 1978 population census, Kilosa had 274,236 people. It is assumed to have an annual increase of 3.1 %, hence to date the population is likely to be well over 308,240 by the end of August 1982.

According to the data we have, 46 per cent of the population of Kilosa District is aged between 0 and 15 years, 49 per cent between 15 and 64 years, and 5 per cent are aged 65 and over.

The average population density is 20 inhabitants per sq. Km.

ADMINISTRATION

The district is composed of 9 divisions with 31 wards and 132 registered villages.

TOWNS AND MINOR SETTLEMENTS

The district has five centres with town qualities. They are :

1. Kilosa, with 19,401 people
2. Kimamba, with 9,722 people
3. Mikumi with 5,142 people
4. Ruaha with 12,349 people
5. Gairo with 5,313 people.

Kilosa town

Kilosa town, the headquarters of Kilosa district, is situated on the Central Railway line at a point where another line links Kilosa and Kidatu via Mikumi. Formerly Kilosa wes an important road transportation point, before the development of Tanzania Highway and the East-West trunk road to Dodoma. However, there is a road linking Mikumi to Dumila, via Kilosa, on the East-West road. It is a very important link between the trunk road and provides a short-cut from Southern regions to Tanga and Kilimanjaro. It is also important because it passes through Mikumi National Park, and there it could be the only link between Dodoma and the nearest national parks. This stresses the importance of Kilosa town in the national transportation system.

Kilosa is situated in a fertile district with immense agricultural potential, extensive or intensive. It has a potential for accommodating a higher population which will provide different activities and facilities.

Kilosa, before colonial occupation, was an important out-post because it was situated on the trade caravan route from the coast to the interior, following the present central line. It grew in importance because of its economic, physical and transport advantages. By the 1960s, Kilosa thrived as an administrative, commercial and agricultural centre. By that time, there were 22 sisal estates in the district.

After independence, however, Kilosa town and the district as a whole, started to loose its importance. The reasons behind this were the opening of more convincing and durable roads from Iringa to Morogoro via Mikumi, and another from Morogoro to Dodoma via Magole-Gairo. The road from Iringa via Kilosa lost its economic importance in traffic. Kilosa is likely to continue to decline in importance with the opening of the Morogoro-Dodoma Highway via Dumila and Gairo which is under construction. Nevertheless, this district still has a considerable potential in the agricultural sector and if this could be exploited, i could constitute a reliable food supplier for Dodoma, Morogoro and Dar-es-Salaam.

SECTORS OF THE ECONOMY

1. Agriculture

(i) While the other sectors of the economy are of much less importance, more than 90 % of the population in the district earn their living from agriculture.

(ii) The main crops cultivated include : maize, sorghum, paddy, beans, and bananas as food crops : cash crops include sugar cane, sisal and onions and sunflower.

(iii) The cultivation techniques are essentially based on manual labour with the traditional handhoes ; productivity is thus very low. Modern production techniques, especially irrigation and the use of tractors, are of much need.

(iv) Despite the availability of fertile areas, the production performance is still low. In 1979/1980 there were some 138,000 Ha of land under cultivation, roughly 10.5% of the total area which can be cultivated.

Fruit and vegetable production:

Kilosa District has a considerable potential for the production of fruit and vegetables. However, it has been difficult to exploit much of this potentiality due to the lack of irrigation channels. Wherever there is a possibility to draw water from rivers and streams through channels to the fields, such places are now famous for vegetable production. The Kidete and Mikumi divisions of Kilosa district are the chief producers of fruit and vegetables.
Fruit and vegetables produced in Kilosa include : bananas, pawpaws, mangoes, coconuts, citrus fruits, onions, green vegetables and root tubers such as cassava and sweet potatoes.

WATER SOURCES

Kilosa has three main rivers : the Mkondoa, Wami and Ruaha. Of these three rivers, the most useful is Mkindoa, the tributaries of which are Kigobere, Kidete Lumuma and Myombo. More than half of the onions and bananas produced in the District come from Kidete Division where these tributaries lie.

The catchment areas of the Ruaha include : Vidunda, Udung'hu and Chonwe, where cabbages, tomatoes and bananas are produced. In the lower basin of the Ruaha lies the Kilombero II Sugar Company.

The other source of water is rainfall. This is the only source which most farmers depend on. Although there is quite a lot of rainfall per year, i.e. over 1,000 mm., its reliability is minimum. The distribution of rainfall is so uneven that some areas may end up with 500 mm. to 700 mm. per year. There is a great need to supplement rainfall with irrigation.

LAND RESOURCES

Land is not scarce in Kilosa District. The total arable area of the district is 13,394 sq. kms. The ratio of the land to people is 20 people to 1 sq. km. Much of the land, however, lies idle. The land by itself, without factors like water and technicians, cannot produce anything. Most of this land could be utilised if irrigation projects were launched. The efforts made in the past to bring more land under fruit, vegetable and root-tuber production, are just beginning to take effect.

LIVESTOCK

Livestock-raising in the district is practised by some pastoral tribes (Masai and Wakaguru) in Gairo, Mamboya and Masanze Divisions. The actual livestock in

Kilosa district is as follows (1980):

Cattle : 279,645
Sheep : 77,393
Goats : 113,800
Pigs : 1,959
Donkeys : 1,405.

Despite this high production, local requirements for milk and beef by far exceed the supply.

The livestock are raised on natural pasture. There are only three ranches : two of them being run by the Tanzania Sisal Authority and the third by the National Ranching Company (NARCO). The major problem of the district is to improve the quality of existing livestock in order to make it more productive.

INDUSTRIES

Kilosa is considered as a medium centre with industrial potentiality. But at the present time the contribution of this sector to the economy of the district is still low. The only large-scale industries in the district are :

- the Kilombero II sugar factory ;
- the carpet factory, which produces carpets, baskets/bags from sisal (Kilosa town) ;
- the Kilosa Timber and Construction Sawmill.

Small-scale industries are scarcely found in the district. The most important are jaggeries (more than ten) and nearly all of them belong to individuals. There are also some sawmills, maize mills and small carpentry workshops.

NATURAL RESOURCES

There are some 85,100 Ha under forest reserve, including Mikumi National Park. This represents 6 % of the total land surface of the district. Not much development has been made in the fishery industry and the contribution of this sector to the economy of the district is negligeable.

Timber extraction is practised in the district and it is assessed that the local market is too small for forest products to be sold outside the district, Dodoma and Dar-es-Salaam being the main outlets. There is a national soft-wood factory in the district.

EDUCATION

Secondary education

Kilosa district has two secondary schools : Kilosa Agricultural Government Secondary School, also called Kizunguzi Agricultural Secondary School, and Mkono wa Mara Technical Parents' Secondary School, a private institution. There are plans also to open two more private parent technical secondary schools : one at Mgugu-Berega and another a Kidodi-Iwemba.

Primary education

Kilosa has 165 primary schools, three of which are technical, namely : Mgugu, Kilosa and Iwemba.

Enrolment

Out of 165 schools, we have 26,784 boys and 24,409 girls, totalling 51,193 pupils altogether. The table below shows enrolment for each class.

Table 1 : Kilosa enrolment in schools by class - January 1982

CLASS	BOYS	GIRLS	TOTAL
I	3,698	3,721	7,419
II	3,833	3,856	7,689
III	3,401	3,431	6,832
IV	4,251	4,073	8,324
V	6,071	5,053	11,124
VI	3,990	3,681	7,677
VII	3,202	2,706	5,908
TOTAL	26,784	24,409	51,193

Streams

Our primary schools have 1,442 streams ; they are as follows for each class :

Table 2 Primary school streams, January 1982

CLASS	STD I	STD II	STD III	STD IV	STD V	STD VI	STD VII	TOTAL
NO OF STREAMS	188	191	187	210	299	204	163	1442

TEACHERS

We have 1,203 teachers of different grades and sex. The table below shows how many they are in each grade. These teachers are insufficient for our schools, there being a shortage of approximately 315 Grade A teachers.

Table 3 : Number of teachers by grade and by sex

GRADE	MALE	FEMALE	TOTAL
IIB	-	1	1
IIC	25	5	30
IIIA	162	98	260
IIIB	537	375	912
TOTAL	724	479	1,203

ADMINISTRATION

There are 15 officers working in the District Education Office :

- one District Education Officer (DEO)
- two Supply & Logistics Officers (SLO)
- one UTS
- one Adult Education Officer
- one District Evaluator
- one District Technical Officer
- one District Homecrafts Officer, and
- seven School Inspectors.

TRANSPORT

Transport is a problem. The Education Office only has one landrover and a seven-ton Isuzu lorry, both of which have been off the road since 1981. In order to visit schools, the officers must use the private buses which only pass on the main roads and do not go into the interior where many of the schools are located. This is particularly problematic for the seven school inspectors, and as a result some schools do not get visited for two to three years. It is also a serious problem for the Supplies and Logistics Officers in order to get the teaching materials through to the various schools in the district.

FURNITURE

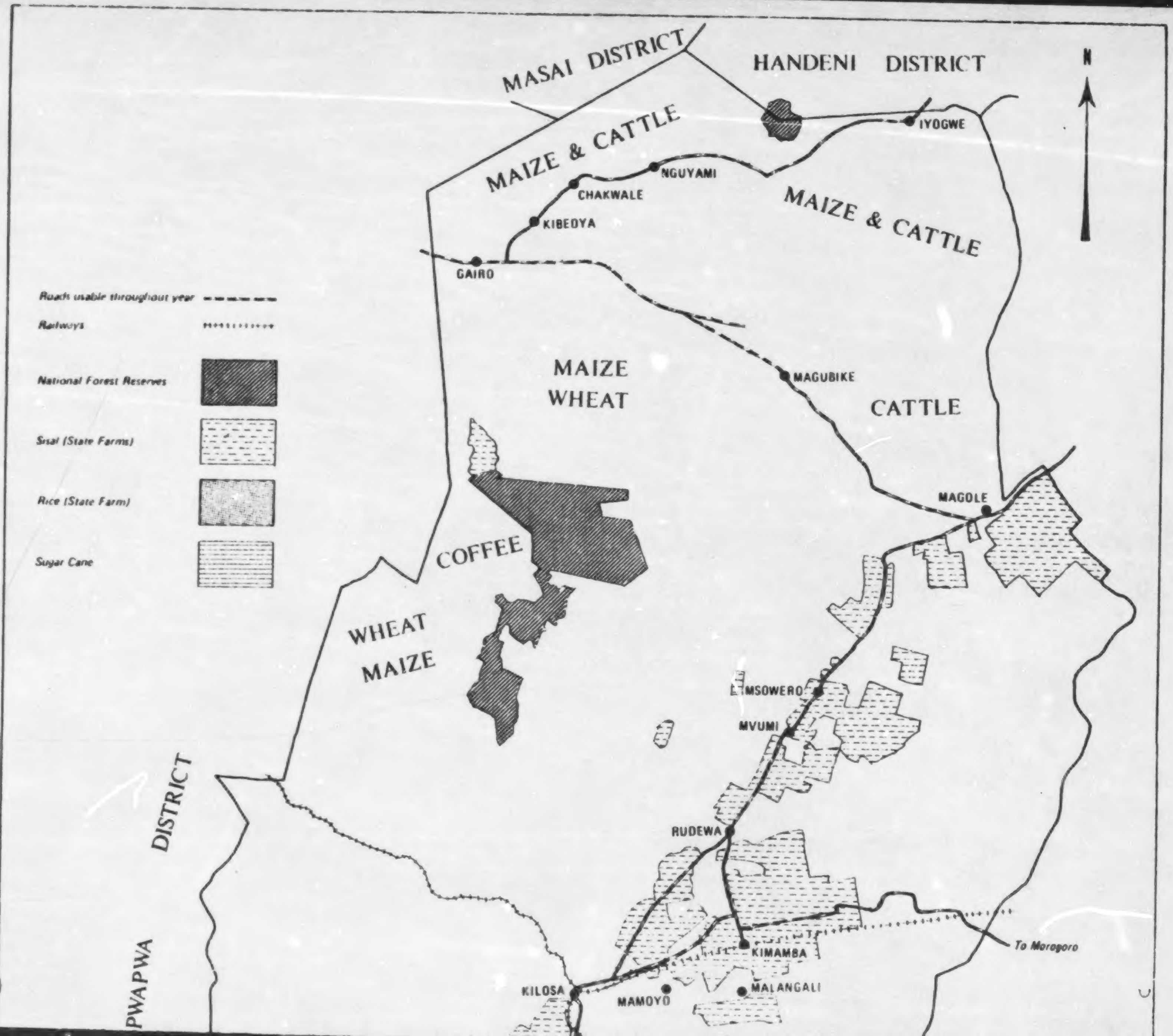
Furniture is a problem also to the district. Nearly half the pupils in the district are sitting on the floor. This also applies to teachers tables and chairs and cupboards for keeping their text-books.

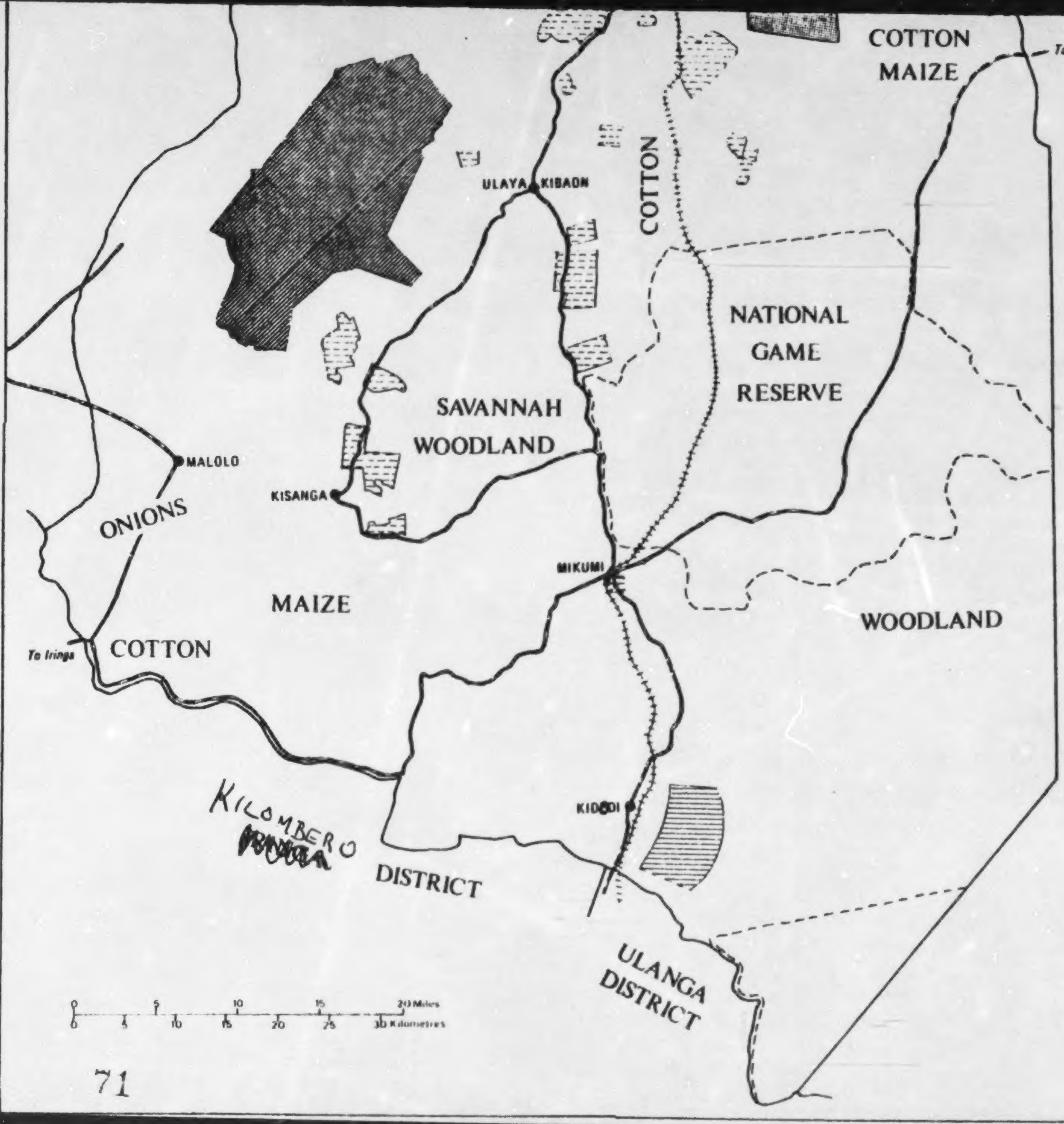
SCHOOL BUILDINGS

When universal primary education was introduced, classrooms and teachers' houses of a temporary nature were erected. Now we have started to improve these buildings : all classrooms and teachers' houses are being built of brick ; however there still remain many to be redone.

1. 1,158 classrooms are needed, 407 are permanent, hence a shortage of 751 permanent classrooms ;
2. 1,300 teachers' houses are needed, only 316 have permanent homes, hence a shortage of 984 houses ;
3. 168 school latrines are needed, 92 are permanent, hence a shortage of 76 proper latrines ;
4. 165 teachers' offices and stores are needed, of which only 68 are in existence, hence a shortage of 97 teachers offices and stores.

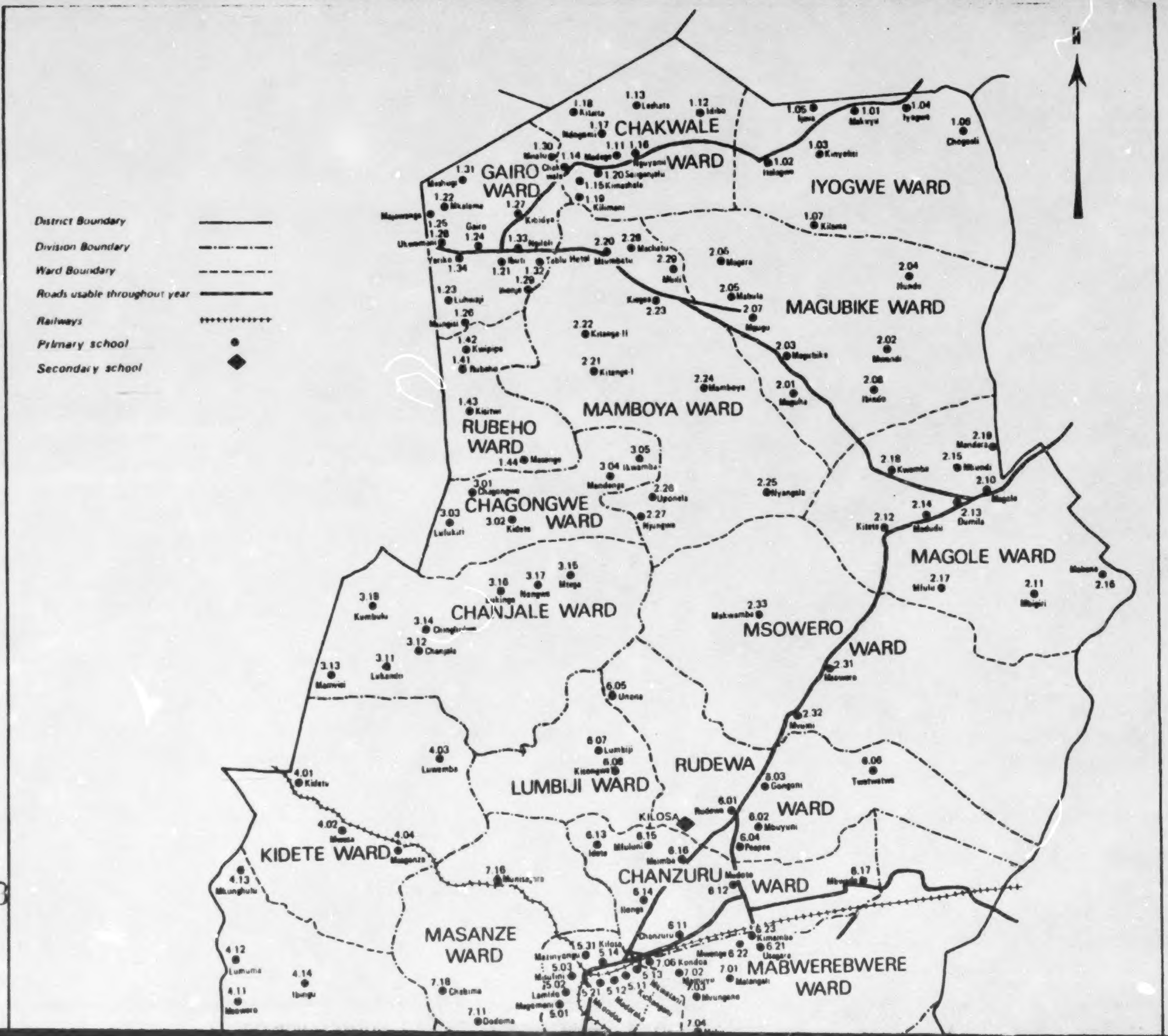
This is a general picture of how Kilosa District is running its education system. The district can do a lot, since it has enough staff to run the district properly, but the major problem facing the district is transport. Much has been done already, but much more could be done if proper transport facilities were available to the officers.

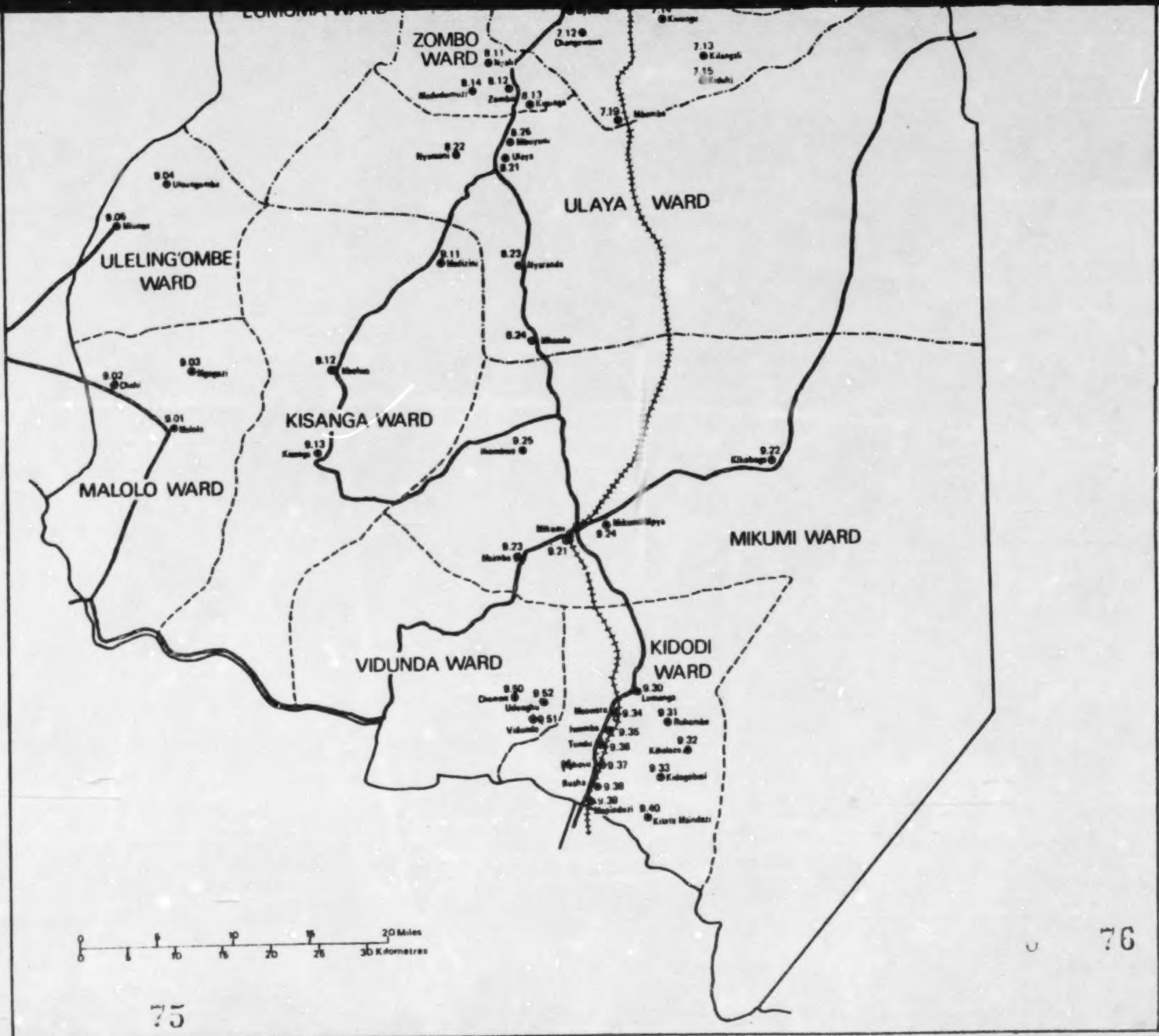

MASAI DISTRICT
HANDENI DISTRICT
N
MAIZE & CATTLE
IYOGWE
NGUYAMI
CHAKWALE
MAIZE & CATTLE
KIBEDYA
GAIRO
Roads usable throughout year
Railways
National Forest Reserves
Sisal (State Farms)
Rice (State Farm)
Sugar Cane
MAIZE
WHEAT
MAGUBIKE
CATTLE
MAGOLE
COFFEE
WHEAT
MAIZE
MSOWERO
MVUMI
DISTRICT
RUDEWA
KIMAMBA
To Morogoro
KILOSA
MAMOYO
MALANGALI
MPWAPWA


COTTON
MAIZE
To Morogoro
ULAYA
KIBAON
COTTON
NATIONAL
GAME
RESERVE
SAVANNAH
WOODLAND
MALOLO
KISANGA
ONIONS
MIKUMI
MAIZE
COTTON
To Iringa
WOODLAND
MOROGORO
DISTRICT
KIDODI
KILOMBERO
DISTRICT
ULANGA
DISTRICT
0 5 10 15 20 Miles
0 5 10 15 20 25 30 Kilometres

72

71


District Boundary
Division Boundary
Ward Boundary
Roads usable throughout year
Railways
Primary school
Secondary school
N
CHAKWALE WARD
GAIRO WARD
IYOGWE WARD
MAGUBIKE WARD
MAMBOYA WARD
RUBEHO WARD
CHAGONGWE WARD
MAGOLE WARD
CHANJALE WARD
MSOWERO WARD
RUDEWA WARD
LUMBIJI WARD
KIDETE WARD
KILOSA
CHANZURU WARD
MASANZE WARD
MABWEREBWERE WARD


ZOMBO WARD
ULAYA WARD
ULELING'OMBE WARD
KISANGA WARD
MALOLO WARD
MIKUMI WARD
VIDUNDA WARD
KIDODI WARD
Mikumi
Mikumi Mpya
Kidodi
Lumango
Ruhembe
Kidogobasi
Msindazi
Kitete Msindazi
Vidunda
Malolo
Kisanga
Uleya
Nyaranda
Mhenda
Chongoroni
Kilangali
Kidoka
Kikwalaji
0 5 10 15 20 Miles
0 5 10 15 20 25 30 Kilometres

EXERCISE Nº 2

SELECTION OF UNITS OF ANALYSIS: IDENTIFICATION OF HOMOGENEOUS ZONES

The district used for the pilot exercise is called the District of Kilosa. It is located in the Morogoro region, West of the city of Morogoro. It has 165 primary schools and two secondary schools, one public boarding secondary school and one private secondary school.

The district extends for about 200 Kms. from North to South, and 70 Kms. from East to West. The total population of the district was 274,664 in 1978. Kilosa town, the district headquarters, has 12,886 inhabitants in 1978. Since then, the town has extended its area to cover the adjacent village of Magomeni, and represents 18,286 inhabitants (1978). Other urban areas are Kimamba (9,164 inhabitants in 1978), Mikumi (7,692 in 1978) and Kidodi (11,639 inhabitants in 1978).

The major roads of the district link, on the one hand, Kidodi and Mikumi (Mikumi National Park) to Morogoro, and Dar-es-Salaam, and on the other hand Kilosa to Morogoro. Another road crosses the district from North to South (Magole to Kidodi) and from East to West (Magole to Gairo). The railway is another important means of communication also. Other roads to the villages are at best minor roads, motorable only during the dry season.

The predominant economic activity in the district is agriculture. Sisal is grown in State farms in the valley, mainly between Kilosa and Magole. Sugar cane plantations and industry are found in the South, around Kidodi. Cattle is raised in the North. Other agricultural productions include meat, maize, cotton, etc. (see the map of economic activity).

The district is divided into divisions and wards. There are now 29 wards regrouped in 9 divisions. When the last census was conducted in 1978, however, there were only six divisions (and two urban areas : Kilosa and Kimamba) and 26 wards. Demographic data are thus only available according to the former list of wards (see Table 1). Population growth is estimated at 3.2 % per annum for the district and 6 % for the urban areas.

As a result of the big villagisation programme, the vast majority of households have been regrouped into villages. According to the 1978 census, 89.1 % of the households in rural areas live in some 125 villages. Each village has at least one primary school. Some villages have two to three schools

A survey has been conducted in various primary schools, and information on enrolment, teachers, and facilities has been collected. It has only been possible, however, to conduct the survey in 118 schools (72 %). Data on the enrolment and teachers of the remaining 47 schools has been gathered from the traditional school forms available at ward and district level. Each school has been given a code number for easy identification. The location of each school, as well as the road network is shown on Map nº 1. The summary of the basic information gathered is presented in Table 2.

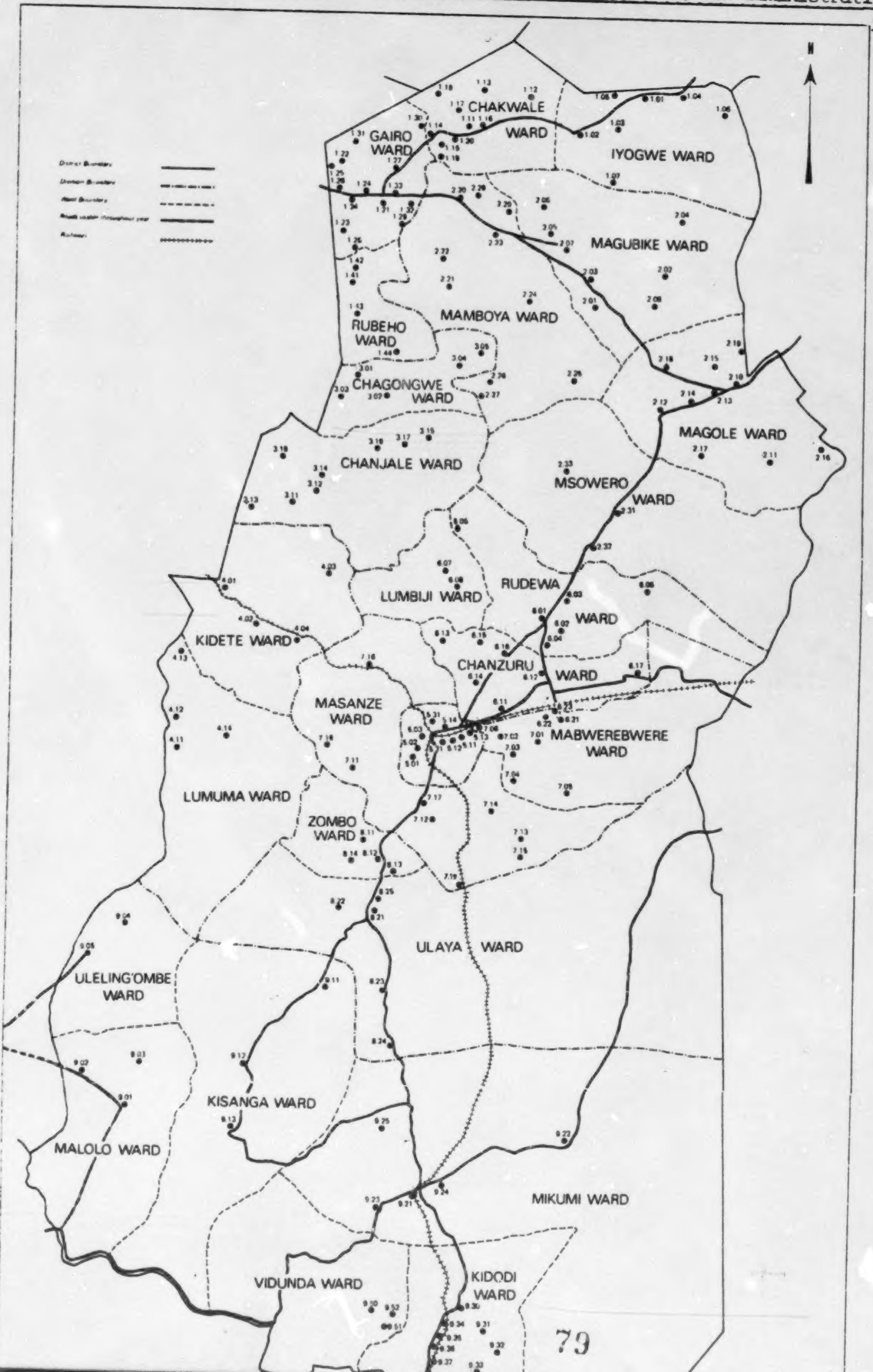
The public secondary school in the district is a boarding agricultural school. It is a four-stream school located in Rudewa Ward ; it does not seem, however, to enrol any child from the district. 96 Standard VII leavers had been selected to enter secondary education in 1981 and 69 in 1982. They have been enrolled in schools all over the country. There is a one-stream private secondary school located in Kilosa but no information is available on it.

In order to make concrete suggestions for the improvement of the primary school system in the district and proposals for the location of secondary schools in the future, it is necessary to analyze the present teaching/learning conditions in the district and to highlight the deficiencies in the system, as well as possible imbalances between schools, groups of students and zones. The analysis could be carried out by ward. Given the high number of wards, however, it would be a very lengthy process. It is therefore suggested to regroup wards (and schools) with similar characteristics, thus identifying various zones each one having its specific problem. Within each zone, educational characteristics should be as homogeneous as possible, and between zones they should be as different as possible.

By analyzing the following criteria :

- relief, road network and means of communication (Map nº 2) ;
- location and density of primary schools in the various wards ; demographic criteria (Map Nº 1) ;
- enrolment ratios in primary education ;
- rate of attendance ;
- percentage of Grade A teachers and above, the number of classrooms per stream, and regrouping various wards, identify between 6 to 9 homogeneous zones. Justify your choice.

Map nº 1 : Kilosa District : Location of the primary schools and administrative divis


N
CHAKWALE WARD
GAIRO WARD
IYOGWE WARD
MAGUBIKE WARD
RUBEHO WARD
MAMBOYA WARD
CHAGONGWE WARD
CHANJALE WARD
MAGOLE WARD
MSOWERO WARD
LUMBIJI WARD
RUDEWA WARD
KIDETE WARD
CHANZURU WARD
MASANZE WARD
MABWEREBWERE WARD
LUMUMA WARD
ZOMBO WARD
ULAYA WARD
ULELING'OMBE WARD
KISANGA WARD
MALOLO WARD
MIKUMI WARD
VIDUNDA WARD
KIDODI WARD

Map nº 2 : Kilosa District : Relief and means of communication

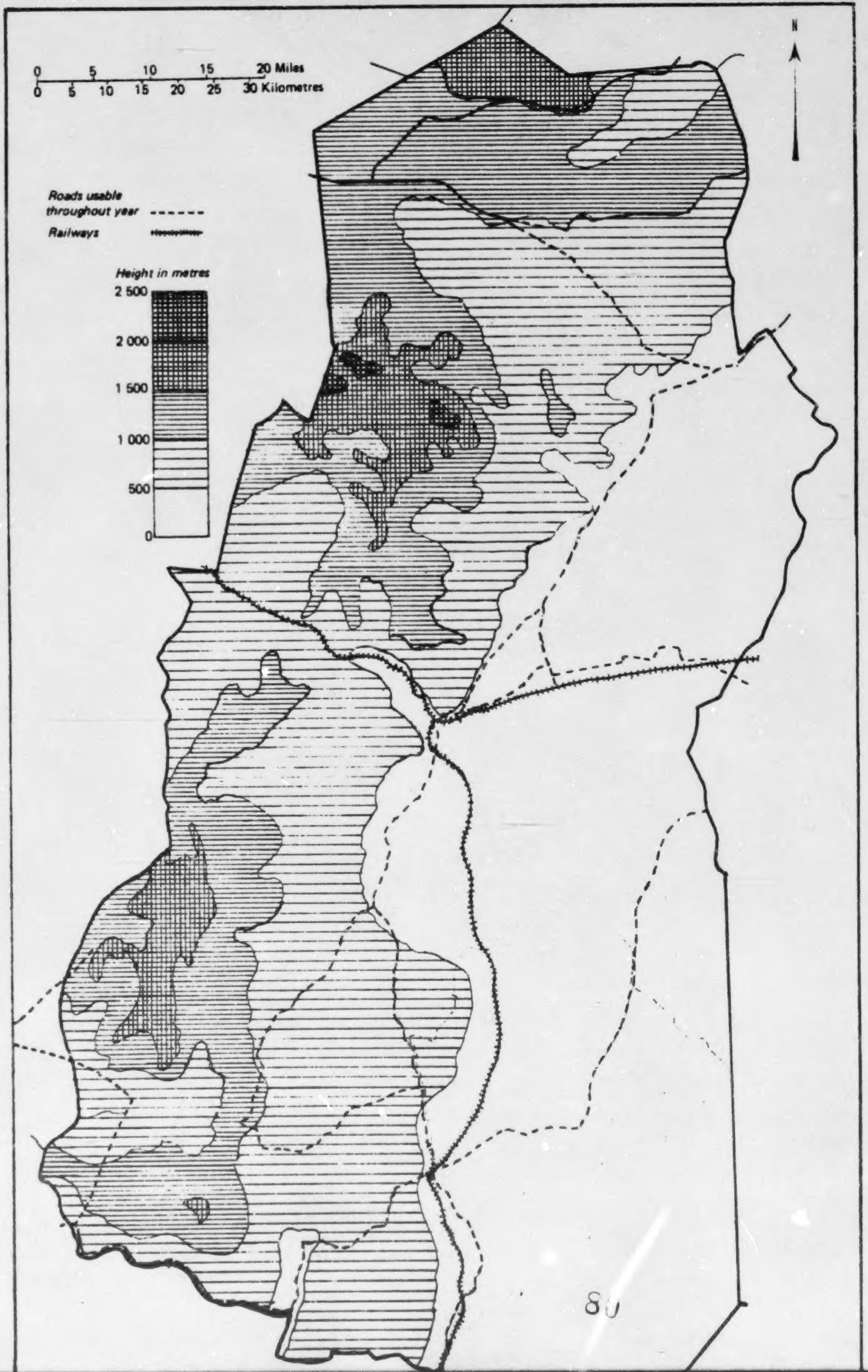

N
0 5 10 15 20 Miles
0 5 10 15 20 25 30 Kilometres
Roads usable throughout year
Railways
Height in metres
2 500
2 000
1 500
1 000
500
0

Table 1 : Total population and school-age population by ward and division - Kilosa District

		Total population (1978 census)		School-age population (1981)
GAIRO DIVISION :	Gairo Ward	18,688		4 288
	Iyogwe Ward	9,377		2 132
	Chakwale Ward	15,316		3 658
	Rubeho Ward	7,867		1 719
MAMBOYA DIVISION :	Magubike Ward	14,438		3 261
	Mamboya Ward	12,477		2 843
	Magole Ward	16,386		3 627
	Msowero Ward	10,685		1 966
NONGWE DIVISION :	Chagongwe Ward	6,232		1 490
	Chanjale Ward	7,998		1 790
MASANZE DIVISION :	Mabwerebwere Ward	15,709		2 881
	Masanze Ward	12,941		2 326
KIMAMBA DIVISION :	Rudewa Ward	12 206		2 257
	Lumbiji Ward			
	Chanzuru Ward	12,139		2 126
	Kimamba Ward	9,164	(all urban)	1 745
KILOSA MJINI DIVISION :	Kasiki Ward	4,639	(all urban)	3 810
	Mbumi Ward	8,247		
	Magomeni Ward	5,400		
KIDETE DIVISION :	Kidete Ward	4,515		837
	Lumuma Ward	4,935		990
ULAYA DIVISION :	Zombo Ward	5,010		970
	Ulaya Ward	9,499		1 800
MIKUMI DIVISION :	Malolo Ward	6 253		1 215
	Ulelingombe Ward			
	Kisanga Ward	4,535		874
	Mikumi Ward	7,692	(of which urban 5 508)	1 365
	Kidodi Ward	32 216	(of which urban 11 639)	5 554
	Vivunda Ward			
TOTAL		274,664		55 525

Table 2 : Kilosa District - Basic data on primary schools

Ward	Name of school	Code	Enrolment (streams)				Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
DIVISION			Grade 1	Str.	Total	Str.						
GAIRO												
Iyogwe	Makyuyu	1.01	61	(1)	429	(10)	252	8	2	7	5	-
	Italagwe	1.02	50	(1)	401	(11)	311	7	1	7	6	-
	Kinyousi	1.03	24	(1)	187	(4)	181	4	-	4	3	1
	Iyogwe	1.04	75	(2)	555	(14)	432	9	2	7	8	-
	Ijaua	1.05	27	(1)	114	(4)	97	3	-	4	na	na
	Chogdali	1.06	31	(1)	259	(8)	141	6	2	7	na	na
	Kilama	1.07	31	(1)	137	(5)	118	3	1	4	na	na
	Sub-total		300	(8)	2 082	(56)	1 532	40	8		22 + na	1 + na
Chakwale	Madege	1.11	44	(1)	331	(8)	297	5	1	6	6	-
	Idibo	1.12	101	(2)	444	(10)	327	7	1	7	6	-
	Leshata	1.13	45	(1)	244	(8)	181	6	1	7	7	-
	Chakwale	1.14	91	(2)	536	(12)	414	9	1	7	6	-
	Kimashale	1.15	46	(1)	261	(6)	175	7	-	5	4	-
	Msuyami	1.16	52	(1)	443	(10)	318	5	-	5	7	1
	Ndogomi	1.17	22	(1)	241	(7)	139	7	1	7	5	-
	Kitaita	1.18	36	(1)	231	(6)	173	7	2	6	na	na
	Kilimani	1.19	33	(1)	141	(4)	125	3	1	4	na	na
	Sanganjelu	1.20	43	(1)	203	(5)	199	2	-	4	na	na
	Sub-total		513	(12)	3 176	(76)	2 348	58	8		41 + na	1 + na
Gairo	Ibuti	1.21	32	(1)	217	(7)	167	8	2	7	6	-
	Mkalama	1.22	30	(1)	298	(8)	231	9	2	7	8	-
	Luhwaji	1.23	27	(1)	213	(6)	189	6	-	6	4	-
	Gairo	1.24	52	(1)	593	(13)	485	15	3	7	10	-
	Majawanga	1.25	49	(1)	261	(7)	169	6	1	6	4	1
	Msingisi	1.26	45	(1)	345	(9)	278	8	3	5	6	-
	Kibedya	1.27	77	(2)	575	(13)	308	11	4	7	7	-
	Ukwamani	1.28	49	(1)	347	(9)	303	7	1	7	4 (+ 2)	(2)
	Ihenje	1.29	20	(1)	186	(6)	155	6	1	6	2 (+ 3)	(3)
	Mnafu	1.30	16	(1)	80	(4)	56	4	1	4	na	na
	Meshugi	1.31	47	(1)	204	(5)	146	3	-	5	na	na
	Tablu Hotel	1.32	31	(1)	157	(5)	114	5	-	5	na	na
	Ngiloli	1.33	32	(1)	148	(5)	123	4	-	5	na	na
	Yeriko	1.34	48	(1)	321	(7)	239	7	3	5	na	na
	Sub-total		555	(15)	3 945	(104)	2 963	99	21		51 (+ 5)	(6)

Table 2 (continued)

Ward DIVISION	Name of school	Code	Enrolment (streams)				Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
			Grade 1	Str.	Total	Str.						
GAIRO (cont'd.)												
Rubeho	Rubeho	1.41	40	(1)	581	(15)	394	11	1	7	7	-
	Kwipipa	1.42	27	(1)	309	(9)	263	6	-	5	5	-
	Kisitwi	1.43	46	(1)	378	(10)	229	9	2	7	8	-
	Masenge	1.44	29	(1)	228	(10)	167	6	1	7	na	na
	Sub-total		142	(4)	1 496	(44)	1 053	32	4	-	20 + na	-
MAMBOYA												
Magubike	Maguha	2.01	48	(1)	318	(8)	291	6	2	7	5	-
	Mwandi	2.02	43	(1)	364	(10)	270	8	2	7	5	-
	Magubike	2.03	89	(2)	616	(14)	493	13	6	7	8	-
	Ifunde	2.04	27	(1)	206	(7)	195	6	1	7	6	-
	Mabula	2.05	35	(1)	290	(7)	247	7	1	7	3	2
	Magera	2.06	56	(1)	254	(7)	172	7	1	7	4	-
	Ngugu (pri & tech)	2.07	131	(3)	531	(18)	418	13	4	7	9	-
	Ibinda	2.08	44	(1)	316	(8)	197	7	1	6	na	na
	Sub-total		473	(11)	2 895	(79)	2 283	67	18		40 + na	2 + na
Magole	Magole	2.10	46	(1)	680	(16)	507	15	2	7	7 (+ 2)	(2)
	Mbigiri	2.11	35	(1)	294	(8)	184	7	1	7	4	-
	Kitete	2.12	44	(1)	317	(8)	220	9	2	7	7	-
	Dumila	2.13	80	(2)	525	(13)	442	10	1	7	5	-
	Madudu	2.14	29	(1)	215	(6)	133	5	-	5	4	-
	Mkundi	2.15	25	(1)	153	(6)	119	4	-	6	3	-
	Mabana	2.16	37	(1)	217	(6)	163	5	1	6	5	-
	Mfulu	2.17	46	(1)	207	(7)	171	5	-	6	na	-
	Kwambe	2.18	0	(0)	40	(3)	29	4	-	4	na	-
	Mandera	2.19	38^{*}	(1)	290^{*}	(8)	na	na	na	7	na	na
	Sub-total		380	(10)	2 938	(81)	1 968 + na	64 + na	7 + na		35 + na	(2)
Mamboya	Mtumbatu	2.20	51	(1)	321	(8)	255	7	1	7	6 (+ 1)	(1)
	Kitange I	2.21	44	(1)	251	(7)	191	6	1	7	4	-
	Kitange II	2.22	45	(1)	447	(11)	343	8	1	7	7	-
	Kiegea	2.23	39	(1)	340	(9)	255	9	1	7	5	1
	Mamboya	2.24	34	(1)	181	(7)	160	3	2	7	na	na

Table 2 (continued)

Ward	Name of school	Code	Enrolment (streams) Grade 1	Str.	Total	Str.	Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
DIVISION												
MAMBOYA (cont'd.)												
Mamboya (cont'd.)	Nyangala	2.25	15	(1)	101	(7)	96	10	3	7	na	na
	Uponela	2.26	50	(1)	280	(8)	204	9	2	7	na	na
	Njungwa	2.27	45	(1)	399	(11)	250	9	-	7	na	na
	Machatu	2.28	36	(1)	219	(6)	192	5	-	6	na	na
	Mbili	2.29	25	(1)	241	(7)	172	6	-	6	na	na
	Sub-total		384	(10)	2 780	(8)	2 118	72	8	8/10	22 (+ 1)	-
Msowero	Msowero	2.31	95	(2)	800	(21)	544	19	3	7	11	-
	Mvumi	2.32	92	(2)	628	(15)	456	10	3	7	7	-
	Makwambe	2.33	31	(1)	98	(5)	78	6	1	5	na	na
	Sub-total		218	(5)	1 526	(41)	1 078	35	7	19	18 + na	-
NONGWE												
Chagongwe	Chagongwe	3.01	81	(2)	360	(11)	257	9	-	7	na	na
	Kidete	3.02	21	(1)	208	(6)	107	3	-	6	na	na
	Lufukiri	3.03	29	(1)	271	(7)	203	6	-	6	na	na
	Mandenge	3.04	35	(1)	164	(7)	135	8	3	7	na	na
	Ikwamba	3.05	47	(1)	297	(7)	206	7	1	6	na	na
	Sub-total		213	(6)	1 300	(38)	908	33	4		-	-
Chanjale	Lukandu	3.11	16	(1)	162	(6)	118	5	-	6	4	-
	Chanjale	3.12	20	(1)	213	(7)	152	7	1	7	6	-
	Mamuisi	3.13	17	(1)	167	(6)	154	4	1	5	4	-
	Chingholwe	3.14	20	(1)	104	(4)	92	3	-	4	4	-
	Mtega	3.15	64	(2)	389	(11)	226	7	-	7	na	na
	Lukinga	3.16	27^{M}	(1)	160^{M}	(5)	na	na	na	6	na	na
	Nongwe	3.17	38	(1)	199	(7)	146	6	1	7	na	na
	Kumbulu	3.18	39	(1)	212	(5)	185	4	-	5	na	na
	Sub-total		243	(9)	1 606	(51)	1 073	36 + na	3 + na		18 + na	-
KIDETE												
Kidete	Kidete station	4.01	38	(1)	240	(6)	202	8	2	6	4	-
	Mwasa	4.02	34	(1)	215	(7)	180	7	2	7	6	-
	Luwemba	4.03	47	(1)	269	(7)	229	8	2	7	6	-
	Msaganza	4.04	19	(1)	168	(6)	136	5	1	6	na	na
	Sub-total		138	(4)	892	(26)	747	28	7		16	-

Table 2 (continued)

Ward DIVISION	Name of school	Code	Enrolment (streams)				Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
			Grade 1	Str.	Total	Str.						
KIDETE (cont'd.)												
Lumuma	Msowero	4.11	47	(1)	254	(6)	230	6	1	6	6	-
	Lumuma	4.12	49	(1)	410	(10)	313	7	1	7	6	-
	Mkunghulu	4.13	36	(1)	238	(6)	195	6	-	6	6	-
	Ibingu	4.14	45	(1)	204	(5)	195	4	1	6	4 (+ 1)	(1)
	Sub-total		177	(4)	1 106	(27)	933	23	3		22 (+ 1)	(1)
ULAYA												
Zombo	Nyali	8.11	28	(1)	248	(8)	154	7	2	7	7	-
	Zombo	8.12	55	(1)	405	(10)	349	10	5	7	9	-
	Kigunga	8.13	42	(1)	174	(3)	132	4	1	4	2	-
	Madudumzi	8.14	45	(1)	274	(8)	240	8	1	6	4	-
	Sub-total		170	(4)	1 101	(31)	875	29	9		22	-
Ulaya	Ulaya	8.12	36	(1)	406	(11)	290	10	1	7	6	-
	Nyameni	8.22	37	(1)	333	(9)	282	8	2	7	7	1
	Ilakala-Nyaranda	8.23	51	(1)	360	(13)	245	11	1	7	4	4
	Mhenda	8.24	50	(1)	335	(9)	270	9	3	7	7	-
	Mbunyuni	8.25	11	(1)	104	(5)	79	5	-	5	5	2
	Sub-total		185	(5)	1 538	(47)	1 166	43	7		29	7
KIMAMBA												
Rudena	Rudena	6.01	112	(3)	715	(18)	626	12	6	7	7	2
	Mbuyuni	6.02	52	(1)	288	(7)	248	6	-	5	4	-
	Gongoni	6.03	52	(1)	298	(8)	261	8	1	6	5	-
	Peapea	6.04	45	(1)	267	(7)	248	7	1	5	3	1
	Unone	6.05	54	(1)	204	(7)	159	8	1	7	na	na
	Twatwatwa	6.06	7	(1)	(72)	(4)	65	3	-	4	na	na
	Lumbiji	6.07	70	(2)	382	(10)	297	9	1	7	na	na
	Kisongwe	6.08	25	(1)	128	(4)	na	3	-	4	na	na
	Sub-total		417	(11)	2 355	(65)	1 904 + na	56	10		19 + na	3 + na
Chanzuru 83	Chanzuru	6.11	52	(1)	405	(11)	309	10	5	7	7	-
	Maduto	6.12	46	(1)	371	(12)	324	13	2	7	7	-
	Idete	6.13	36	(1)	187	(5)	149	4	-	4	na	na
	Ilonga	6.14	109	(2)	633	(13)	580	na	na	7	na	na
	Mfuluni	6.15	27	(1)	144	(6)	119	na	na	7	na	na

Table 2 (continued)

Ward DIVISION	Name of school	Code	Enrolment (streams) Grade 1	Str.	Total	Str.	Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
KIMAMBA (cont'd.)												
Chanzuru (cont'd.)	Msimba	6.16	53	(1)	286	(7)	269	na	na	7	na	na
	Mbwade	6.17	46[M]	(1)	112[M]	(3)	na	na	na	3	na	na
	Sub-total		369	(8)	2 138	(57)	1 750 + na	27 + na	7 + na		14 + na	
Kimamba	Usagara	6.21	136	(2)	648	(15)	563	15	2	7	8	-
	Mwengo	6.22	102	(2)	484	(14)	333	14	5	7	7	-
	Kimamba	6.23	118	(3)	613	(15)	610	14	5	7	7	-
	Sub-total		356	(7)	1 745	(44)	1 506	43	12		22	-
KILOSA MJINI												
Magomeni	Magomeni	5.01	52	(1)	358	(9)	279	8	3	7	4 (+ 1)	(1)
	Lamulilo	5.02	99	(2)	648	(14)	570	12	4	7	4	-
	Misufini	5.03	48	(1)	206	(6)	145	6	-	4	-	-
Mkwatani	Kichangani	5.11	57	(2)	499	(11)	498	13	6	7	8	-
	Madaraka	5.12	45	(1)	321	(7)	266	8	3	7	4	-
	Mkwatani	5.13	50	(1)	168	(11)	145	6	1	4	3	-
	Kilosa	5.14	58	(1)	544	(12)	518	14	5	7	11	-
Mbumi	Mkondoa	5.21	84	(2)	426	(11)	348	13	4	7	4	-
Kasiki Mjini	Mazinyungu	5.31	102	(2)	576	(13)	459	14	9	7	9	-
	Sub-total		595	(13)	3 746	(94)	3 228	94	35		47 (+ 1)	(1)
MASANZE												
Mabwerebwere	Malangali	7.01	45	(1)	308	(8)	237	7	-	5	4	-
	Mamoyo	7.02	74	(2)	477	(11)	331	12	1	6	5	-
	Mungano/Mabwerebwere	7.03	31	(1)	434	(11)	229	10	3	7	6	-
	Malui	7.04	88	(2)	463	(11)	344	10	1	7	6 (+ 2)	(2)
	Tindiga	7.05	55	(2)	559	(12)	455	10	3	7	13	-
	Kondoa	7.06	32	(1)	195	(6)	153	6	2	6	3	-
	Sub-total		325	(9)	2 436	(59)	1 749	55	10		37 (+ 2)	1 (+ 2)
Masanze	Dodoma	7.11	23	(1)	128	(5)	92	4	-	4	5	-
	Changarawe	7.12	12	(1)	115	(6)	80	6	2	6	3	2
	Kilangali	7.13	58	(1)	258	(7)	251	8	1	7	7	-
	Kivungu	7.14	51	(1)	440	(10)	307	10	3	7	7	-
	Kiduhi	7.15	50	(1)	50	(1)	46	1	1	1	na	na

Table 2 (continued)

Ward	Name of school	Code	Enrolment (streams)				Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
DIVISION			Grade 1	Str.	Total	Str.						
MASANZE (cont'd.)												
Masanze (cont'd.)	Munisagara	7.16	26	(1)	212	(7)	172	6	3	7	na	na
	Myombo	7.17	47	(1)	337	(9)	243	11	3	7	7 (+ 1)	(1)
	Chabima	7.18	12	(1)	122	(5)	109	4	-	5	na	na
	Mbamba	7.19	41	(1)	257	(9)	180	8	-	7	5	-
	Sub-total		320	(9)	1 919	(59)	1 480	62	13		34 (+ 1)	2 (+1)
MIKUMI												
Malolo	Malolo	9.01	56	(1)	359	(11)	292	9	2	7	6	-
	Chabi	9.02	22	(1)	150	(6)	116	6	1	6	5	-
	Mgogozi	9.03	23	(1)	129	(5)	124	5	-	6	3	1
	Uleungombe	9.04	47	(1)	306	(7)	254	8	-	7	6	-
	Mlunga	9.05	28	(1)	185	(5)	160	5	1	5	4	-
	Sub-total		176	(5)	1 129	(34)	946	33	4		24	1
Kisanga	Madizini	9.11	45	(1)	223	(6)	200	6	-	6	5	-
	Msolwa	9.12	32	(1)	207	(6)	167	6	1	6	4	-
	Kisanga	9.13	92	(2)	416	(11)	296	12	2	7	8	-
	Sub-total		169	(4)	846	(23)	663	24	3	-	17	-
Mikumi	Mikumi	9.21	50	(1)	462	(13)	341	14	3	7	7	-
	Kikoboga	9.22	15	(1)	78	(7)	64	4	2	7	6	-
	Msimba	9.23	52	(1)	297	(7)	269	8	1	6	4	-
	Mikumippya	9.24	82	(2)	409	(10)	314	10	1	5	4	2
	Ihombwe	9.25	13	(1)	85	(3)	84	2	-	3	na	na
	Sub-total		212	(6)	1 331	(40)	1 072	38	7		21 + na	2 + na
Kidodi/Vivunda	Lumango	9.30	22	(1)	235	(7)	168	7	1	7	6	-
	Ruhembe	9.31	47	(1)	320	(8)	278	7	1	5	6	-
	Kihelezo	9.32	34	(1)	227	(6)	172	6	2	4	6	-
	Kidogobasi	9.33	31	(1)	296	(8)	180	6	2	7	6	-
	Msowero	9.34	26	(1)	291	(8)	223	5	2	6	4 (+ 1)	(1)
	Iwemba	9.35	31	(1)	290	(8)	208	6	3	7	7	-
	Tundu	9.36	43	(1)	359	(8)	326	6	2	6	4 (+ 3)	(3)
	Imhovu	9.37	47	(1)	344	(9)	264	9	4	7	7	-
	Ruaha	9.38	151	(2)	545	(10)	452	12	6	7	5 (+ 2)	(2)
	Mapinduzi	9.39	128	(2)	698	(13)	650	12	-	7	8	-

Table 2 (continued)

Ward DIVISION	Name of school	Code	Enrolment (streams)				Average attendance	Total nº of teachers	Teachers Grade A & above	Highest standard	Nº of classrooms	Classrooms missing, under tree (in church)
			Grade 1	Str.	Total	Str.						
MIKUMI												
Kidodi/Vivunda (cont'd.)	Kitete Msindazi	9.40	50	(1)	367	(8)	276	8	2	7	7	-
	Chonwe	9.50	51	(1)	390	(9)	314	7	1	7	5 (+ 3)	(3)
	Vivunda	9.51	42	(1)	350	(9)	271	9	4	7	8	-
	Udunga	9.52	97	(2)	646	(14)	516	9	2	7	10	-
	Sub-total		800	(17)	5 358	(125)	4 298	109	36		89 (+ 8)	9

SOLUTION TO EXERCISE Nº 2

IDENTIFICATION OF HOMOGENEOUS ZONES

The basic map on which the various zones are to be drawn is Map Nº 1, showing the division and ward boundaries, as well as the location of primary schools.

The first criteria to be applied are relief and quality of the road network. They will allow us to identify those areas where communications are easy, i.e. where access to education and organization of the educational service should be easier, and those areas where, on the contrary communication is fairly difficult. Since the main objective of the educational policy has been and remains universalization of primary education, two criteria will be determinant when drawing up our zone boundaries : that is the gross enrolment ratio and the rate of attendance in primary schools. These two indicators really measure the access and retention in the primary education system. Other criteria, such as percentage of Grade A teachers and above, or number of streams per classroom (indicators of the quality of the educational service), will only be applied if there is some doubt as to where to allocate any one ward.

A. Applying the criterion on relief, one can identify two zones. The plain in the East, corresponding to the large agricultural area in the North (sisal State farms), the Mikumi National Park, and the Kidodi area (sugar cane) in the South constitutes one zone. The mountaneous area in the West constitutes the other.

Applying the criteria of both relief and means of communication, one can identify four zones : the valley, where communications are very easy, two mountaneous areas, where communications are still fairly easy, one in the North (Gairo Division plus Mamboya and Magubike Ward), and one in the South (Malolo and Kisanga), and finally one zone where communications are extremely difficult : Lumuma Ward, Kidete Ward and Nongwe Division.

B. The demographic criterion as well as that of the density of primary schools allows us to separate out two definitely urban areas : Kilosa-Mjini (9 schools), Kidodi/Vivunda Ward (14 schools), from the rest of the district. It is in those two urban areas that it will be easiest in the future to organize secondary education. Kilosa has already one private secondary school.

C. If we now analyze the gross enrolment ratio, six zones seem to appear :

- A zone in the North which includes the whole of the Gairo Division, Nongwe Division and part of Mamboya Division (Mamboya and Magubike Ward). The enrolment ratio varies between 87 % and 100 % : schooling is relatively high, although not yet universalized.
- A zone in the North plain, with a comparatively low gross enrolment ratio : Magole Msowero (77.6 %).
- A central urban/semi-urban zone : Rudewa, Chanzuru, Kimamba, Kilosa Mjini, with a high enrolment ratio.
- A rural mountaneous area with a high enrolment ratio : Kidete, Lumuma, Zombo.
- Another peri-urban area in the centre, with a rather low enrolment ratio (85 %) : Masanze Division, plus Ulaya Ward.
- Mikumi Division in the South, with a fairly high enrolment ratio.

D. The analysis of the rate of attendance by wards seems to confirm the existence of :

- a zone in the North with low attendance : 75 % or less ; the whole of Gairo Division, Nongwe Division and Mamboya Division (with the exception of Mamboya and Magubike Wards where attendance is higher) ;
- a zone in the centre with high attendance corresponding to the urban and semi-urban area : Rudewa, Chanzuru, Kimamba, Kilosa Mjini (rate of attendance of 85 % or more) ;
- another zone in the centre, but with an attendance rate below 80 % : Masanze, Mabwerebwere, Ulaya ;
- a West zone : Kidete Division - high rate of attendance ;
- a South zone : Mikumi division (rate of attendance between 78 % and 83 %).

Combining the various criteria so far analysed, we would consider :

- a zone in the North : Gairo, includes Gairo Division, Magubike, Mamboya Wards, Nongwe Division (?), fairly high enrolment ratio but low attendance - mountaneous area with nonetheless fairly easy communication (with the exception of Nongwe Division) ;

. Magole/Msowero : agricultural area in the North/East plain, easy communications, but low enrolment and attendance ratio ;

. Central urban area : Kimamba Division, Kilosa Mjini (?) ;

. Masanze Division, plus Ulaya - same characteristics as Magole Msowero, but in the Central South ;

. Kidete Division plus Zombo - very difficult communications, but high enrolment ratio and attendance rate ;

. Mikumi Division, easy communications, high enrolment ratio and attendance rate.

Some doubts remain concerning the necessity for making separate zones out of :

- Nongwe Division (Plus Rubeho)
- Kilosa Mjini
- Kidodi.

E. The percentage of Grade A teachers above does not vary very much from one ward to another. There does not seem to be a very definite pattern either. Two wards, however, seem to have a particularly high percentage of more qualified and/or experienced teachers : Kilosa Mjini on the one hand (37.2 %), Kidodi on the other (33.0 %). Nongwe Division seems to have a slightly lower percentage of such qualified teachers, but it is not a striking difference. The number of streams per classroom varies much more between 1.2 (which can be considered as normal) and 2 (double-shift is then the rule and all grades have half-day sessions). The lack of classrooms is a serious problem everywhere, with the only exception of Kidete Division and Chanjale Ward. It is more serious, however, in some areas (Msowero, Magole) and in urban areas (Kilosa, Kimamba, Rudewa). The number of classes meeting under a tree or in inadequate facilities (store-rooms, headmaster's offices, churches) is the highest in Kilosa Mjini and Kidodi.

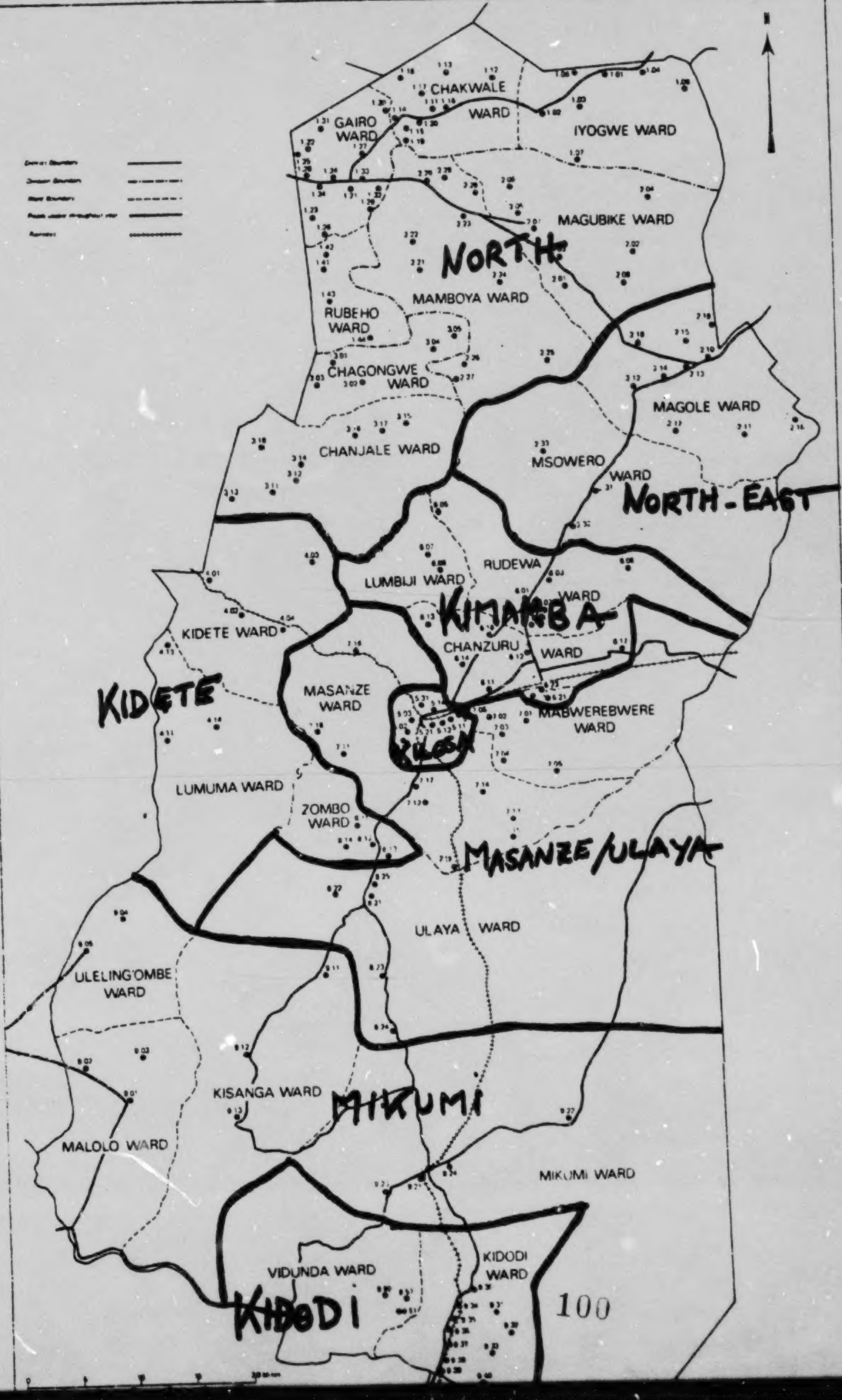
We have therefore concluded on eight zones :

. Gairo (North) (Gairo Division, Nongwe Division, Magubike, Mamboya) ;
. Msowero/Magole (North-East) ;
. Kimamba Division ;
. Kilosa Mjini ;
. Masanze Division, plus Ulaya ;

- Kidete Division ;
- Mikumi (Mikumi Division without Kidodi) ;
- Kidodi.

Table 1 : Kilosa District : Some basic indicators

Ward	Gross enrolment ratio	Attendance enrolment %	% teachers Grade A & above	Streams/ classrooms
Gairo	92.0	75.1	21.2	1.53-1.39
Iyogwe	97.7	73.5	20.0	1.77
Chakwale	86.8	73.9	14.0	1.48
Rubeho	87.0	70.4	12.5	1.70
Chagongwe	87.3	69.8	12.0	n.a.
Chanjale	89.7	74.2	8.0	1.27
Mamboya	97.8	76.2	11.1	1.60- 1.50
Magubike	88.7	78.8	26.8	1.90
Magole	81.0	74.3	10.9	2.65-1.70
Msowero	77.6	70.6	20.0	2.00
Rudewa/Lumbiji	104.3	85.5	17.8	2.10
Chanzuru	100.5	86.4	25.0	1.60
Kimamba	100.0	86.3	27.9	2.00
Masanze	82.5	77.1	20.9	1.30
Mabwerebwere	84.5	71.8	18.2	1.60-1.50
Kilosa Mjini	98.3	86.2	37.2	2.00
Kidete	106.6	83.7	25.0	1.25
Lumuma	111.7	84.3	13.0	1.22-1.17
Zombo	113.5	79.4	31.0	1.41
Ulaya	85.4	75.8	16.2	1.62
Mikumi	97.5	80.5	18.4	1.76
Kidodi/Vivunda	96.5	80.2	33.0	1.40-1.30
Kisanga	96.8	78.3	12.5	1.35
Malolo	92.9	83.8	12.1	1.41


CHAKWALE WARD
GAIRO WARD
IYOGWE WARD
MAGUBIKE WARD
NORTH
MAMBOYA WARD
RUBEHO WARD
CHAGONGWE WARD
MAGOLE WARD
CHANJALE WARD
MSOWERO WARD
NORTH-EAST
RUDEWA WARD
LUMBIJI WARD
KIMAMBA
KIDETE WARD
CHANZURU WARD
MASANZE WARD
KIDETE
KILOSA
MABWEREBWERE WARD
LUMUMA WARD
ZOMBO WARD
MASANZE/ULAYA
ULAYA WARD
ULELING'OMBE WARD
KISANGA WARD
MIKUMI
MALOLO WARD
MIKUMI WARD
VIDUNDA WARD
KIDODI WARD
KIDODI

LECTURE Nº VI

DEMOGRAPHIC DATA AND ANALYSIS OF SCHOOL ENROLMENTS(1)

by

G. Carron

Demographic data are an important element in the analysis of school enrolment, especially when assessing the coverage of the educational system.

It may be however that the required demographic data are difficult to collect. Such difficulties occur because of three main reasons :

- Population censuses which provide detailed data on the population by sex and by age for each locality and for each region, only take place at rather widely spaced intervals (usually once every ten years). During the inter-census period (between two censuses), no actual data are available and one has to make do with projections which are more or less exact.
- The geographic units which are used in the census and are usually based on the administrative divisions of the country, are not necessarily the same as the educational zones and regions as defined by the educational authorities.
- Demographic data are frequently presented by five-year age groups whereas in constructing indicators concerning school atttendance it is necessary to have population data by specific age. A method which enables five-year age groups to be broken down into specific-age sub-groups is given in the Appendix.

I. Assessing the coverage of the educational system

The extent of coverage of the educational system can be assessed either by the proportion of children who reach a specific level of education (admission rate), or by the proportion of children of a given age group who are in the educational system at at a given level (enrolment rate). These two types of indicators relate to different aspects which require more detailed explanation.

A. Admission rate

Admission rate attempts to measure access to the educational system, in other words the proportion of children who are actually admitted to school. Some of these children will however not complete the educational cycle.

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(1) This outline is based on : G. Carron & Ta Ngoc Châu, Reduction of regional disparities : the role of educational planning, Paris, The Unesco Press/ IIEP, 1981

The admission rate makes a distinction between access in its strict meaning and retention, in so far as the two phenomena depend on different factors.

According to the data available, we can calculate

1. The apparent admission rate which expresses total admissions, irrespective of age, in terms of the total population of official admission age.

$$\text{Apparent admission rate} = \frac{\text{Total admissions}}{\text{Official admission age population}} \times 100$$

When the number of late entries is considerable, this rate may be greater than 100%.

2. Specific age admission rates which give for each specific age the number of new admissions and the population.

$$\text{Admission rate of 6 year olds} = \frac{\text{New admissions of 6 year olds}}{\text{6 year old population}}$$

Specific age admission rates give us an idea of the extent of early entries (before the official admission age) and late entries (after the official admission age) at any given moment ; they do not enable us to know exactly the proportion of a cohort which is actually admitted to school.

3. Admission rates for cohorts

In order to calculate this rate, it is necessary to determine what proportion of a cohort of children (in other words, all the children born in the same year) is admitted to the first year of studies in the level of eudcation being considered. To calculate admission rates on the basis of an actual cohort, we would have to be able to trace it without break for several years in order to count all those of its members that have gained admission, whether early, belatedly or otherwise in each year. Although certain countries have experimented with methods of identifying cohorts (1) these experiments have not yet been generally applied, and in most countries the information required to calculate these rates is not available.

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(1) See : Office of Statistics, Les méthodes de codification des effectifs scolaires, Paris, Unesco, July 1979

Some countries do supply figures showing the breakdown of new admissions by age, and where this kind of information is available for several consecutive years, it becomes possible to reconstitute admission rates for a cohort on the basis of the rates of admission by age.(1)

The following table gives for example the age-specific admission rates for the period 1974-78 ;

Table 1. Age specific admission rates in primary education

Age	Boys					Girls				
	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
5	5.3	5.5	4.2	4.9	4.9	4.6	4.5	3.9	4.6	4.5
6	26.7	27.7	28.9	28.8	29.7	26.9	26.7	29.1	28.8	28.5
7	47.4	49.3	48.0	49.1	47.9	46.9	48.6	47.4	48.2	46.7
8	14.5	15.4	14.6	14.5	14.7	13.4	14.6	13.5	13.5	13.6
9	3.5	3.7	3.2	3.1	3.2	3.0	3.2	2.8	2.6	2.6
10	1.2	1.2	1.0	1.0	1.1	1.0	1.0	0.8	0.8	0.9
11	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3
12 +	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2

In order to obtain the cohort admission rate, it is necessary to follow a cohort, for example that of children born in 1969. A portion of this cohort is admitted in 1974 at the age of 5, another in 1975 at the age of 6 another in 1976 at the age of 7, etc. To obtain the admission rate for the cohort as a whole, it is necessary to add the rates diagonally : the figures underlined in the table.

B. Enrolment rates

The enrolment rate is the indicator the most readily used to assess the degree of quantitative expansion of the educational system. It is particularly useful because it gives us a quick and direct idea of the extent of schooling in the different regions.

Here again, two rates are to be distinguished :

(1) The gross enrolment rate which expresses the total enrolments at a given level in terms of the official-age population for that level. If primary education is 6 years' long and if the official admission age is 7, the gross enrolment rate is calculated as :

Gross enrolment rate = Total enrolments in primary education

(2) Net enrolment rate only considers enrolments aged 7 to 12.

$$\text{Net enrolment rates} = \frac{\text{7-12 year olds enrolled in primary education}}{\text{7-12 year old population}}$$

(3) Age specific enrolment rate relates enrolments of a given age to the population of that age :

$$\text{Net enrolment rate of 7 year olds} = \frac{\text{Enrolments aged 7}}{\text{7 year old population}}$$

One should not lose sight however of the fact that enrolment rates have extremely global character which makes interpretation tricky, for they combine the results of three distinct phenomena, namely admissions, repetitions and dropouts. If, as is often the case, one uses the apparent enrolment rate,(i.e. the ratio between total enrolments in a given educational level and the population in the age-group officially corresponding to that level), a high proportion of repeaters will swell enrolments and thereby increase this rate. Moreover, a region with a very broad admission base but with a large proportion of drop-outs may have the same enrolment rate as a region in which the admission base is narrow but with a higher degree of retention.

C. Measuring the efficiency of the education service

The most commonly used indicators for measuring the efficiency of the education service are promotion, repetition and drop-out rates. These three rates are in fact closely inter-related and should inform us about pupils' progress through the school system to which they have been admitted.

Here again, the difficulty lies in the fact that the data normally available and the methods generally applied do not totally dissipate ambiguity in calculating these rates. What in fact happens is that

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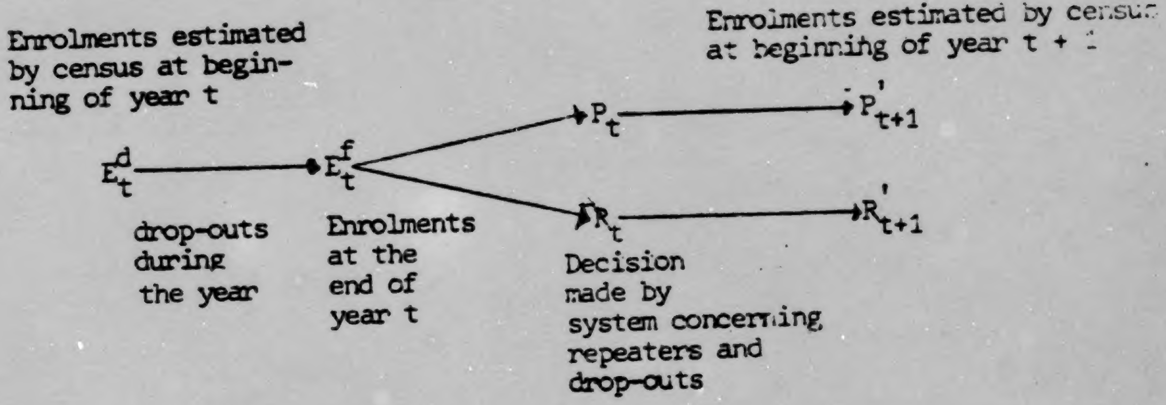
(1) Ta Ngoc Châu, Population growth and costs of education in developing countries, Paris, IIEP, 1972

we try to deduce these three rates by comparing total enrolments for two consecutive years and taking the number of repeaters into account. Broadly speaking, the calculation takes the following form :


Enrolments estimated by census at beginning of year t
Enrolments estimated by census at beginning of year t + 1
E^d_t
E^f_t
P_t
P'_{t+1}
R_t
R'_{t+1}
drop-outs during the year
Enrolments at the end of year t
Decision made by system concerning repeaters and drop-outs

At the end of the year, enrolments E^f_t may be less than E^d_t owing to drop-outs in mid-year, and this constitutes a first category of drop-outs. Out of the enrolments E^f_t still in school at the end of the year, the system decides to promote P_t to the class above and that R_t shall repeat the year. In the next year, however, we are not going to find P_t in the class above but P'_{t+1}, and the difference $(P_t - P'_{t+1})$ represents a second category of drop-outs, those dropping out even though they could have been promoted normally. Similarly, we find not R_t but R'_{t+1}, and the difference $(R_t - R'_{t+1})$ constitutes a third category of drop-outs, those who drop out because obliged to repeat.

Migration phenomena complicate the problem ever more. A certain number of children may leave the region. They are thus considered as drop-outs, although in fact it may be that they have enrolled in a school in another region. Inversely, the enrolment figures of a region may be swollen by the influx of children from other regions. In so far as the extent of such movements is not known, there is a tendency to over-estimate the number of drop-outs in rural areas (due to families leaving the area and the probably enrolment of their children in urban schools) and to underestimate drop-outs in urban areas (because the number of actual drop-outs is compensated for by the enrolment of children coming from rural areas).

The only figures available to us through annual census data are E_t^d, P'_{t+1} . And we calculate droputs as follows : $A = E_t^d - (P'_{t+1} - R'_{t+1})$.

Now, as we have just seen, drop-outs may in fact be broken into relatively different categories and their measurement is distorted by migratory movements.

What makes interpretation even more difficult is that the ratio $\frac{P'_{t+1}}{E_t^d}$ is regarded as the promotion rate and the ratio $\frac{R'_{t+1}}{E_t^d}$ as the repetition rate.

In as much as R'_{t+1} is less than R_t, the fact that the repetition rate $\frac{R'_{t+1}}{E_t^d}$ is low does not necessarily imply that only a small number of pupils are repeating. It may also signify that a high proportion of those asked to repeat prefer to drop out. The repetition rate as usually calculated therefore does not constitute a reliable indicator for comparisons of situations in different regions of a country. For instance, it may be that repetition rates are higher in an area well served by the school network than in a less privileged area. This does not mean that only a small proportion of children are obliged to repeat in this less privileged area ; it could simply mean that those who are obliged to repeat in this area give up easily whereas, in the area with a better network, they prefer to persevere.

As the fact of repeating a year is essentially experienced as a failure, the ratio $\frac{R_t}{E_t^f}$ (proportion of children obliged by the system to repeat a year) is more significant than the repetition rate.

Just as there is a gap between R_t and R'_{t+1}, there may also be a gap between P_t and P'_{t+1}, as is demonstrated in a study by Isabelle Deblé on Brazil (1). The gap $(P_t - P'_{t+1})$ cannot be analysed in the same way as the gap $(R_t - R'_{t+1})$. Whereas $(R_t - R'_{t+1})$ represents pupils having dropped out due to discouragement by their academic failure, $(P_t - P'_{t+1})$ may represent pupils who, although promoted, fail to find a place in the class above owing to a shortage of places. This is the explanation put forward by Isabelle Deblé. P'_{t+1} therefore represents the actual number of pupils promoted, and $\frac{P'_{t+1}}{E^d_t}$ the objective probability of a pupil's being promoted.

We may thus distinguish two indicators of inequality in promotion: the first, $\frac{P_t}{E^f_t}$ is connected with academic success and gives the proportion of pupils successfully completing a given class and considered fit for promotion; the second, $\frac{P'_{t-1}}{E^f_t}$ gives the proportion of pupils actually admitted to the class above and depends also on the way the school system is organized and on the geographical distribution of available places.

Another type of indicator which in fact sums up the combined effect of drop-outs and repetitions over several years of studies is the retention rate. This seeks to determine the probability for a member of a given cohort of getting through all the classes of a given cycle and of completing it. Since the information currently available is scarcely sufficient for us to trace a real cohort, we generally have to construct fictitious ones, stationary ones most of the time.(1) The principal weakness in the reconstruction of these cohorts stems from the fact that one is obliged to rely on average promotion, repetition and drop-out rates.

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(1) I. Deblé, "Les déperditions d'effectifs dans le Tiers Monde et ses ambiguïtés", Tiers Monde, Paris, IEDES, uillet/décembre 1974, Vol. XV, Nos. 59-60, p. 562

Leaving aside the above-mentioned remarks concerning the calculation of rates, reconstructing fictitious cohorts implies, on the one hand, that the same rate applies regardless of the number of previous repetitions, and, on the other hand, that the number of repetitions is -- theoretically -- unlimited. Although frequently used, retention rates derived from the reconstruction of fictitious cohorts cannot be held to give an exact pricture of the real situation.

What is more, since drop-out rates are calculated by comparing enrolments for two consecutive years, children who emigrate from the country to the town are considered as drop-outs even if they have not left the school system. Where migration from the countryside into the towns takes place on a large scale, applying the fictitious age-group method tends to underestimate retention rates in the countryside and to overestimate them in the towns. This may account for the considerable difference between rates calculated in this way for urban and rural areas, as in Colombia, for instance.(1)

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(1) For a presentation of the method of fictitious cohorts, see :

D. Blot, "The problem of wastage in Argentine education : theoretical analysis and application" in OECD, Education, Human Resources and Development in Argentina, Paris, OECD, 1968, Vol. II, pp. 65-116

I.B.E. A statistical study of wastage at school : a study prepared for IBE by the Unesco Office of Statistics, Geneva, IBE, 1972

A. Lemay, Les cohortes fictives dans l'analyse du rendement scolaire, Paris, Université de Vincennes, 1978

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(1) See : Office of Statistics (Unesco), op.cit., pp. 80-81 which gives the following figures

	Class					Pass in primary school certificate exam
	1	2	3	4	5	
Urban area	1 000	757	669	564	504	442
Rural area	1 000	508	143	71	39	34

Appendix

Dividing five-year age groups into single-year groups: the Sprague multipliers

The Sprague method of interpolation is based in principle not only on the number in the age group which is being considered, but also on the numbers in the two preceding and the two following age groups. Since this method presupposes a knowledge of the numbers in the two preceding age groups and in the two following age groups, it cannot be strictly applied to very young age groups (0–4 and 5–9) or to very old age groups (70–74 and more than 75 years). That is why the interpolation of the 0–4 age group is made on the basis of the numbers in the *three* following age groups, and the interpolation of the 5–9 age group on the basis of the one preceding group and the two following groups. The same procedure is adopted for the very old age groups, the interpolation of the 70–74 age group being based on the numbers in the preceding groups and the one following group while the interpolation of the more than 75-year age group is based on the numbers in the three preceding groups.

Under the Sprague method, *tables of coefficients* are established in order to facilitate the computations. In accordance with what was said above, several tables are necessary: a *first table* for the 0–4 age group, enabling the interpolation to be made from the numbers in the three following age groups: a *second table* for the 5–9 age group, for making the interpolation on the basis of the numbers in the one preceding age group and the two following age groups: and an *intermediate table* which can be used for the successive age groups, since in each case the numbers in the two preceding and the two following age groups are known. Two new tables of coefficients would of course be necessary for the two groups corresponding to the oldest ages.

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Appendix

An educational planner will especially need the first two tables and the intermediate table. These are given below.

If F_0 is the number in the age group under consideration, F_{+1}, F_{+2} and F_{+3} the numbers in the three following age groups, and F_{-1} and F_{-2} the numbers in the two preceding age groups, and if, furthermore, F_a, F_b, F_c, F_d, and F_e represent respectively the first, second, third, fourth and fifth age years of the group, the table of Sprague multipliers can be presented in the following form:

Sprague multipliers

	F_{-2}	F_{-1}	F_0	F_{+1}	F_{+2}	F_{+3}
First table						
F_a			+0.3616	−0.2768	+0.1488	−0.0336
F_b			+0.2640	−0.0960	+0.0400	−0.0080
F_c			+0.1840	+0.0400	−0.0320	+0.0080
F_d			+0.1200	+0.1360	−0.0720	+0.0160
F_e			+0.0704	+0.1968	−0.0848	+0.0176
Second table						
F_a		+0.0336	+0.2272	−0.0752	+0.0144	
F_b		+0.0080	+0.2320	−0.0480	+0.0080	
F_c		−0.0080	+0.2160	−0.0080	+0.0000	
F_d		−0.0160	+0.1840	+0.0400	−0.0080	
F_e		−0.0176	+0.1408	+0.0912	−0.0144	
Intermediate table						
F_a	−0.0128	+0.0848	+0.1504	−0.0240	+0.0016	
F_b	−0.0016	+0.0144	+0.2224	−0.0416	+0.0064	
F_c	+0.0064	−0.0336	+0.2544	−0.0336	+0.0064	
F_d	+0.0064	−0.0416	+0.2224	+0.0144	−0.0016	
F_e	+0.0016	−0.0240	+0.1504	+0.0848	−0.0128	

By way of illustration, the following is the procedure for estimating the numbers of children of 6, 7, 8, 9, 10 and 11 years when the numbers of individuals in the 0–4, 5–9, 10–14, 15–19 and 20–24 year age groups are known.

The given figures are the following:

0–4 age group:	161 300
5–9 age group:	139 515
10–14 age group:	71 225
15–19 age group:	47 300
20–24 age group:	38 820

As has been noted above, to interpolate the 5–9 age group we will use the second table of Sprague multipliers, while the intermediate table will be used for the 10–14 age group (or any following age groups).

The number of 6-year-olds, for example, corresponds to line F_2 in the second table above. Therefore:

$$\begin{aligned}\text{Number of 6-year-olds} &= 0.0080\ F_{-1}+0.2320\ F_{0}\\ &\quad -0.0480\ F_{+1}+0.0080\ F_{+2}\\ &= (0.0080\times 161\,300)+(0.2320\times 139\,515)\\ &\quad -(0.0480\times 71\,225)+(0.0080\times 47\,300)\\ &= 1290+32\,367-3419+378\\ &= 30616\end{aligned}$$

Estimate of numbers of children of 6, 7, 8 and 9 years of age

Age	161 300 multiplied by corresponding coefficient	139 515 multiplied by corresponding coefficient	71 225 multiplied by corresponding coefficient	47 300 multiplied by corresponding coefficient	Total
6	+1 290	+32 367	−3 419	+378	30 616
7	−1 290	+30 135	− 570	0	28 275
8	−2 581	+25 671	+2 849	−378	25 561
9	−2 839	+19 644	+6 496	−681	22 620

Estimate of numbers of children of 10 and 11 years of age

Age	161 300 multiplied by corresponding coefficient	139 515 multiplied by corresponding coefficient	71 225 multiplied by corresponding coefficient	47 300 multiplied by corresponding coefficient	38 820 multiplied by corresponding coefficient	Total
10	−2 065	+11 831	+10 712	−1 135	+ 62	19 405
11	− 258	+ 2 009	+15 840	−1 968	+248	15 871

EXERCISE Nº 3

DIAGNOSIS OF ENROLMENT
(Primary Education)

When preparing the diagnosis of enrolment of primary education, one should look in particular at :

- . the coverage of the educational system ;
- . the efficiency of the system ;
- . the location of primary schools and distance covered by pupils to go to school.

I. Coverage of the educational system

Complete the following tables :

Table nº 1 : Admission ratio by zones

Zone	7 years old (1981)	Admission Standard I (1981)	Admission ratio
North (Gairo)	3 545	2 758	
North-East	903	596	
Kimamba	1 029	1 082	
Kidete	483	465	
Kilosa Mjini	618	586	
Masanze/Ulaya	1 270	790	
Mikumi	573	545	
Kidodi	932	795	
Total District	9 330	7 617	

Table 2 : Gross enrolment ratio by zones

Zone	7-13 yrs. old (1981)	Total enrolment (1981)	Gross enrolment ratio
North (Gairo)	21 181	19 280	91.0 %
North-East	5 594	4 464	
Kimamba	6 128	6 238	101.8 %
Kidete	2 797	3 099	110.8 %
Kilosa Mjini	3 810	3 746	98.3 %
Masanze/Ulaya	7 007	5 893	84.1 %
Mikumi	3 454	3 306	
Kidodi	5 554	5 358	
TOTAL DISTRICT	55 525	51 384	92.6 %

Table 3 : Specific age admission ratio (Total district)

Age :	5	6	7	8	9	10	11	12	13
Pupils admitted Standard I	31	155	2 348	2 159	1 568	892	358	106	-
Population	10 174	9 796	9 330	8 940	8 455	7 930	7 370	6 900	6 600
Admission ratio	0.3%							1.5%	-

Table 4 : Specific age enrolment ratios

Age :	5	6	7	8	9	10	11	12	13	14	15	16	17
Pupils admitted	31	179	2640	3718	5050	5959	5938	6197	6197	5507	4844	3052	2072
Population	10 174	9796	9330	8940	8455	7930	7370	6900	6600	6420	6250	6070	5910
Enrolment ratio %	0.3								93.9	85.8	77.5	50.3	35.1

Table 5 : Rate of attendance in primary school by zone

	Total[1] enrolment	Average attendance (Oct/Nov. 81)	Rate of attendance
North (Gairo)	19 280	14 278	74.1 %
North-East	4 174	3 021	72.3 %
Kimamba	5 998	5 160	86.0 %
Kidete	3 099	2 555	82.4 %
Kilosa Mjini	3 746	3 228	86.2 %
Masanze/Ulaya	5 893	4 395	74.6 %
Mikumi	3 306	2 681	
Kidodi	5 358	4 298	
Total District	50 854	39 616	77.9 %

(1) Enrolment of schools for which we have information on attendance.

Table 6 : Percentage of girls in primary education by zone

Zone	% Girls	Zone	% Girls
North (Gairo)	50.6	Kilosa Mjini	50.1
North-East	46.8	Masanze Ulaya	46.7
Kimamba	45.7	Mikumi	48.1
Kidete	44.8	Kidodi	47.7
Total District : 47.7 %			

Table 7 : Structure of enrolment by grade and zone

	I	II	III	IV	V	VI	VII	Total
North	2 823	2 572	3 460	4 130	2 683	2 207	1 405	19 280
North-East	598	566	655	1 031	840	499	275	4 464
Kimamba	1 142	867	954	1 170	824	701	580	6 238
Kidete	485	413	443	605	477	442	234	3 099
Kilosa	594	499	579	744	529	453	348	3 746
Masanze	830	709	825	1 370	1 079	621	459	5 893
Mikumi	557	423	578	652	486	413	197	3 306
Kidodi	800	783	780	1 322	709	553	411	5 358
Total	7 829	6 832	8 274	11 024	7 627	5 889	3 909	51 384
%								

Prepare a graph showing the distribution of enrolment by standard for the whole district.

Comment the various indicators. What can you conclude concerning the coverage of the primary school system in the district ?

II. Efficiency of the educational system

Complete Tables 6 and 7. Comment on the efficiency of the primary education system.

Table 8 : Zone of Mikumi - Promotion, repetition and drop-out ratio

	Std. I	Std. II	Std. III	Std. IV	Std. V	Std. VI	Std. VII
1980 enrolment	447	585	660	491	415	207	193
1981							
Promoted/admitted							
Repeaters	10	9	2	3	-	-	-
Total	557	423	578	652	486	413	197
	I-II	II - III	III - IV	IV - V	V - VI	VI - VII	
Promotion ratio							
Repetition ratio							
Drop-out ratio							

Table 9 : Promotion, repetition and drop-out ratios by zone

	I - II	II - III	III - IV	IV - V	V - VI	VI - VII
GAIRO						
Promotion ratio	94.4	99.1	84.2	89.1	89.6	100.0
Repetition ratio	1.6	0.9	0.3	-	-	-
Drop-out ratio	4.0	0.0	15.5	10.9	10.4	0.0
MAGOLE/MSOWERO						
Promotion rate	92.9	95.5	96.7	96.7	86.0	76.3
Repetition ratio	0.2	2.9	0.6	-	-	-
Drop-out ratio	6.9	1.6	2.7	3.3	14.0	23.7
KIMAMBA						
Promotion ratio	91.0	96.3	89.9	97.7	95.4	98.6
Repetition ratio	3.5	3.7	0.3	-	-	-
Drop-out ratio	5.5	0.0	9.8	2.3	4.6	1.4
MIKUMI						
Promotion ratio						
Repetition ratio						
Drop-out ratio						
KIDODI						
Promotion ratio	91.5	98.2	93.5	95.5	99.1	97.4
Repetition ratio	0.5	0.4	0.4	-	-	-
Drop-out ratio	8.0	1.4	6.1	4.5	0.9	2.6
KILOSA						
Promotion ratio	95.8	92.9	99.9	97.6	99.8	98.4
Repetition ratio	1.7	0.4	-	-	-	-
Drop-out ratio	2.5	6.7	0.1	2.4	0.2	1.6
KIDETE						
Promotion ratio	94.0	98.0	99.4	99.7	99.0	98.0
Repetition ratio	3.9	2.0	0.5	0.2	-	-
Drop-out ratio	2.1	-	0.1	0.1	1.0	2.0
MASANZE/ULAYA						
Promotion ratio	92.6	92.4	93.1	98.9	99.0	98.0
Repetition ratio	5.0	6.2	2.9	0.5	-	-
Drop-out ratio	2.4	1.4	4.0	0.6	1.0	2.0

III. Distance travelled by pupils

Table 10 : Distance travelled by pupils in primary education

Zone	Nº of schools surveyed	Distance from home to school (on foot)				
		∠ 2 Kms.	2-4 Kms.	4-6 Kms.	> 6 Kms.	Total
North	39 (57%)	9 993 76.9%	2 639 20.3%	289 2.2%	76 0.6%	12 997 100.0%
Magole/ Msowero	9 (69%)	2 983 80.9%	490 13.3%	152 4.1%	63 1.7%	3 688 100.0%
Kimamba	9 (50%)	3 111 96.1%	98 3.0%	28 0.9%	- -	3 237 100.0%
Kidete	11 (91%)	2 090 74.2%	700 24.8%	22 0.8%	4 0.1%	2 816 100.0%
Kilosa	9 (100%)	3 531 94.5%	49 1.3%	26 0.7%	129 3.4%	3 735 100.0%
Masanze/ Ulaya	17 (81%)	4 623 80.1%	850 14.7%	250 4.3%	50 0.9%	5 773 100.0%
Mikumi	12 (92.3%)	2 438	520	131	36	3 125 100.0%
Kidodi	14 (100%)	4 135	533	249	212	5 129 100.0%
		81.3%	14.5%	2.8%	1.4%	100.0%

Comment the general situation in the district and the difference by zone.

SOLUTION TO EXERCISE Nº 3

DIAGNOSIS OF ENROLMENT (Primary)

I. Coverage of the educational system

Table nº 1 : Admission ratio by zones

Zone	7 years old (1981)	Admission Standard I (1981)	Admission ratio
North (Gairo)	3 545	2 758	77.8 %
North-East	903	596	66.0 %
Kimamba	1 029	1 082	105.2 %
Kidete	483	465	96.3 %
Kilosa Mjini	618	586	94.8 %
Masanze/Ulaya	1 270	790	62.2 %
Mikumi	573	545	95.1 %
Kidodi	932	795	85.3 %
Total District	9 330	7 617	81.6 %

Table 2 : Gross enrolment ratio by zones

Zone	7-13 yrs. old (1981)	Total enrolment (1981)	Gross enrolment ratio
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North-East	5 594	4 464	79.8 %
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Kidete	2 797	3 099	110.8 %
Kilosa Mjini	3 810	3 746	98.3 %
Masanze/Ulaya	7 007	5 893	84.1 %
Mikumi	3 454	3 306	95.7 %
Kidodi	5 554	5 358	96.5 %
TOTAL DISTRICT	55 525	51 384	92.6 %

Table 3 : Specific age admission ratio (Total district)

	5	6	7	8	9	10	11	12	13
Pupils admitted Standard I	31	155	2 348	2 159	1 568	892	358	106	-
Population	10 174	9 796	9 330	8 940	8 455	7 930	7 370	6 900	6 600
Admission ratio	0.3%	1.6%	25.2%	24.2%	18.6%	11.3%	4.9%	1.5%	-

Table 4 : Specific age enrolment ratios

Age :	5	6	7	8	9	10	11	12	13	14	15	16	17
Pupils admitted	31	179	2640	3718	5050	5959	5938	6197	6197	5507	4844	3052	2072
Population	10 174	9796	9330	8940	8455	7930	7370	6900	6600	6420	6250	6070	5910
Enrolment ratio %	0.3	1.8	28.3	41.6	59.7	75.2	80.6	89.8	93.9	85.8	77.5	50.3	35.1

Table 5 : Rate of attendance in primary school by zone

	Total^(1) enrolment	Average attendance (Oct/Nov. 81)	Rate of attendance
North (Gairo)	19 280	14 278	74.1 %
North-East	4 174	3 021	72.3 %
Kimamba	5 998	5 160	86.0 %
Kidete	3 099	2 555	82.4 %
Kilosa Mjini	3 746	3 228	86.2 %
Masanze/Ulaya	5 893	4 395	74.6 %
Mikumi	3 306	2 681	81.1 %
Kidodi	5 358	4 298	80.2 %
Total District	50 854	39 616	77.9 %

(1) Enrolment of schools for which we have information on attendance.

Graph 1 : Distribution of enrolment by grade - Total district

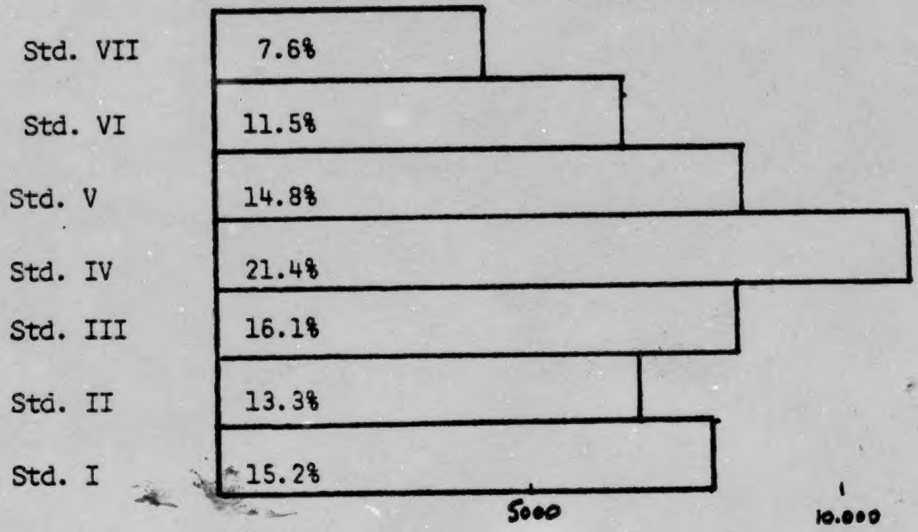


Table 6 : Promotion, repetition and drop-out ratios by zone

	I - II	II - III	III - IV	IV - V	V - VI	VI - VII
GAIRO						
Promotion ratio	94.4	99.1	84.2	89.1	89.6	100.0
Repetition ratio	1.6	0.9	0.3	-	-	-
Drop-out ratio	4.0	0.0	15.5	10.9	10.4	0.0
MAGOLE/MSOWERO						
Promotion rate	92.9	95.5	96.7	96.7	86.0	76.3
Repetition ratio	0.2	2.9	0.6	-	-	-
Drop-out ratio	6.9	1.6	2.7	3.3	14.0	23.7
KIMAMBA						
Promotion ratio	91.0	96.3	89.9	97.7	95.4	98.6
Repetition ratio	3.5	3.7	0.3	-	-	-
Drop-out ratio	5.5	0.0	9.8	2.3	4.6	1.4
MIKUMI						
Promotion ratio	92.6	98.5	98.3	98.9	99.5	95.1
Repetition ratio	2.2	1.5	0.3	0.6	-	-
Drop-out ratio	5.2	0.0	1.4	0.5	0.5	4.9
KIDODI						
Promotion ratio	91.5	98.2	93.5	95.5	99.1	97.4
Repetition ratio	0.5	0.4	0.4	-	-	-
Drop-out ratio	8.0	1.4	6.1	4.5	0.9	2.6
KILOSA						
Promotion ratio	95.8	92.9	99.9	97.6	99.8	98.4
Repetition ratio	1.7	0.4	-	-	-	-
Drop-out ratio	2.5	6.7	0.1	2.4	0.2	1.6
KIDETE						
Promotion ratio	94.0	98.0	99.4	99.7	99.0	98.0
Repetition ratio	3.9	2.0	0.5	0.2	-	-
Drop-out ratio	2.1	-	0.1	0.1	1.0	2.0
MASANZE/ULAYA						
Promotion ratio	92.6	92.4	93.1	98.9	99.0	98.0
Repetition ratio	5.0	6.2	2.9	0.5	-	-
Drop-out ratio	2.4	1.4	4.0	0.6	1.0	2.0

III. Distance travelled by pupils

Table 7 : Distance travelled by pupils in primary education

Zone	Nº of schools surveyed	Distance from home to school (on foot)				
		< 2 Kms.	2-4 Kms.	4-6 Kms.	> 6 Kms.	Total
North	39 (57%)	9 993 76.9%	2 639 20.3%	289 2.2%	76 0.6%	12 997 100.0%
Magole/ Msowero	9 (69%)	2 983 80.9%	490 13.3%	152 4.1%	63 1.7%	3 688 100.0%
Kimamba	9 (50%)	3 111 96.1%	98 3.0%	28 0.9%	- -	3 237 100.0%
Kidete	11 (91%)	2 090 74.2%	700 24.8%	22 0.8%	4 0.1%	2 816 100.0%
Kilosa	9 (100%)	3 531 94.5%	49 1.3%	26 0.7%	129 3.4%	3 735 100.0%
Masanze/ Ulaya	17 (81%)	4 623 80.1%	850 14.7%	250 4.3%	50 0.9%	5 773 100.0%
Mikumi	12 (92.3%)	2 438 78.1%	520 16.6%	131 4.2%	36 1.1%	3 125 100.0%
Kidodi	14 (100%)	4 135 80.6%	533 10.4%	249 4.8%	212 4.1%	5 129 100.0%
		81.3%	14.5%	2.8%	1.4%	100.0%

Comment the general situation in the district and the difference by zone.

EXERCISE Nº 4

DIAGNOSIS OF ENROLMENT

(Secondary)

I. Post-primary technical education

Table 1

Zones	Nº of schools surveyed	Nº of schools offering post-primary tech.	Enrol-ment	Atten-dance	Specializations offered
North (Gairo)	38	1	26	26	Year 1 : Carpentry Domes. Sc. Year 2 : Carpentry
North-East	9	-	-	-	
Kimamba	9	-	-	-	
Kidete	11	-	-	-	
Kilosa Mjini	9	1	47	40	Domestic science Carpentry Tin-work
Masanze/ Ulaya	17	-	-	-	
Mikumi	12	-	-	-	
Kidodi	14	1	25	17	Domestic science Metalwork Carpentry
Total District	119	3	98	83	

II. Literacy, post-literacy and other adult education programmes

Table 2

Zones	Nº of schools surveyed	Number of schools organizing : Literacy courses nº	%	Post-literacy courses nº	%	Other adult education programmes nº	%
North	38	38	100.0	34		-	-
North-East	9	9	100.0	5		-	-
Kimamba	9	9	100.0	1		-	-
Kidete	11	11	100.0	9		2 Dom. Science	
Kilosa Mjini	9	9	100.0	1		1 Carpen.-DomSc.	
Masanze/Ulaya	17	17	100.0	3		1 Carpen.-DomSc.	
Mikumi	12	12	100.0	2		1 Carpentry	
Kidodi	14	14	100.0	2		1 Carpentry	
Total	119	119	100.0	57		6	

1. Literacy courses - 1981

Table 3 : Enrolment and attendance in literacy courses

Zone	Illiterates enrolled Total	Average attendance Total	Rate of attendance %
North Gairo	9 386	High non-response	76.3 (1)
North-East	2 499	2 174	
Kimamba	5 483	3 974	
Kidete	2 617	1 948	
Kilosa Mjini	1 943	1 528	
Masanze/Ulaya	4 610	3 398	
Mikumi	2 945	2 323	
Kidodi	1 678	1 152	
Total District	31 161	16 497 + NR	75.9 (1)

(1) Rate of attendance computed for those schools only which gave information on average attendance.

2. Post-literacy courses

Table 4 : Enrolment and attendance in post-literacy courses

Zone	Adults enrolled			Average attendance			Rate of attendance
	Level 1	Level 2	Total	Level 1	Level 2	Total	
North Gairo	2 435	2 269	4 704	1 839 + NR	1 477 + NR	3 316	80.2 %(1)
North-East	351	187	538	NR	NR	NR	NR
Kimamba	106	120	226	15	17	32	
Kidete	702	496	1 198	569	444	1 013	
Kilosa Mjini	106	70	176	85	63	148	
Masanze Ulaya	35	73	108	NR	NR	NR	
Mikumi	23	31	54	19	21	40	
Kidodi	137	99	236	135	97	232	
Total district	3 895	3 345	7 240	not available			n.a.

(1) Computed for those schools only which gave information concerning average attendance.

(3) Literacy courses : Results of August 12th Examination

Table 5 : Results obtained in the literacy examination, August 1981

Zones		Adults required to attend the examination (1)	Adults who sat the examination (2)	(2)/(1)	Level attained				
					Below I	I	II	III	IV
North (Gairo)	nº	13 051	10 638	81.5%	2057	2327	2265	1927	1612
	%		100%		23.6%	21.9%	21.3%	18.1%	15.2%
N.East	nº	3 351	2 772		600	688	517	612	355
	%		100%						
Kimamba	nº	5 768	4 419		1174	1126	885	666	568
	%		100%						
Kidete	nº	3 442	3 199		886	910	496	504	403
	%		100%						
Kilosa Mjini	nº	2 226	2 113		604	439	373	424	273
	%		100%						
Masanze/Ulaya	nº	6 712	6 208		2059	1595	940	974	640
	%		100%						
Mikumi	nº	3 929	3 217		725	738	547	571	636
	%		100%						
Kidodi	nº	3 807	3 062		773	619	565	690	415
	%		100%						
Total District	nº	42 286	35 628	84.3%	9328	8442	6588	6368	4902
	%		100%		26.2%	23.7%	18.5%	17.9%	13.8%

Source : Survey on 119 primary schools.

Complete Tables 1 to 5. Comment on the organization of literacy and post-literacy courses in the district.

IV. Secondary Education

Table 6 : Transition ratio to public secondary schools - 1980/1981

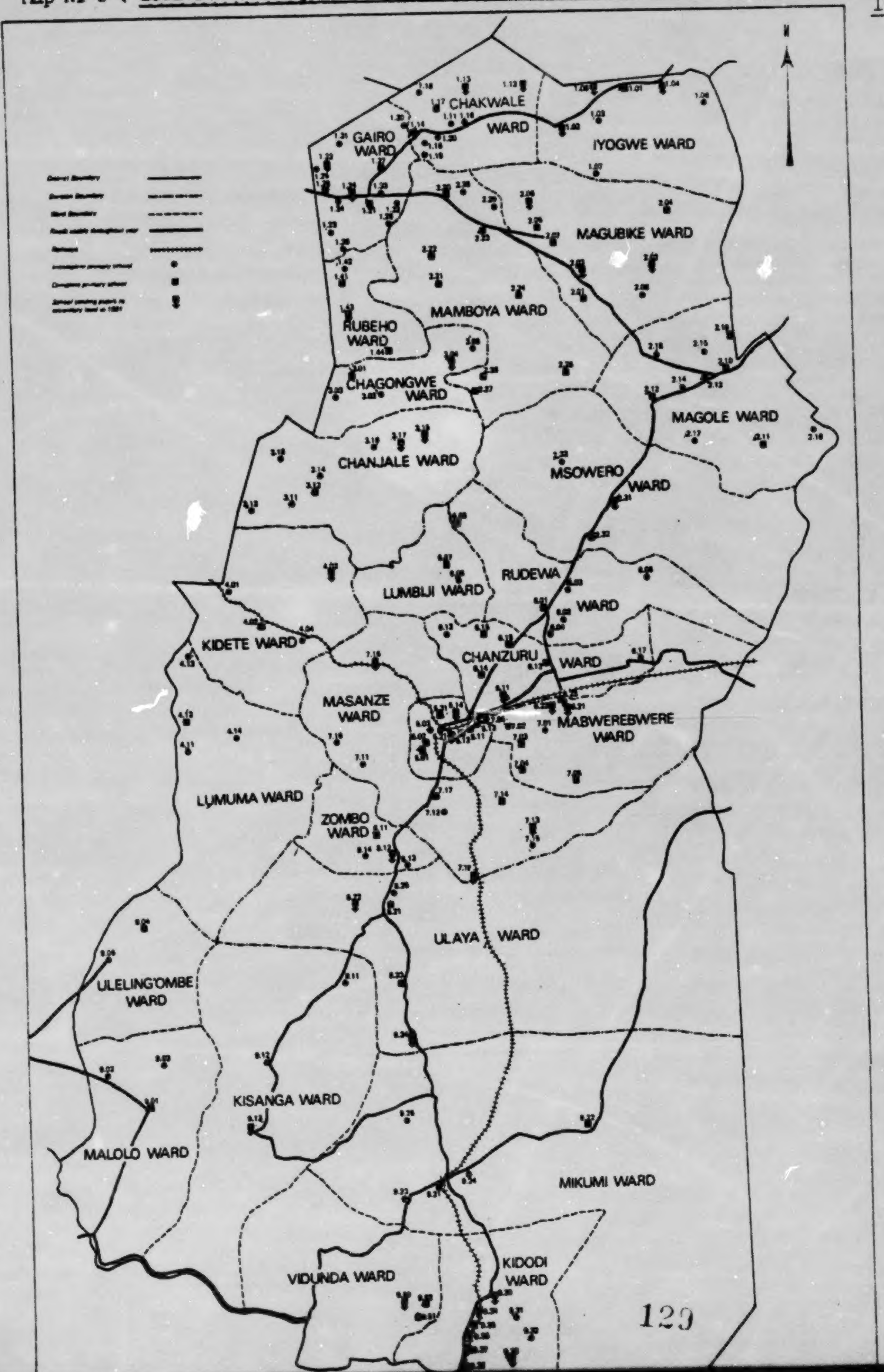
Zone	Pupils admitted Form I secondary schools in 1981	Pupils admitted TTCs in 1981	Sub-total	Transition ratio from Std. VII in 1980
North	52	1	53	4.9 %
North-East	1	1	2	0.8 %
Kimamba	10	3	13	3.1 %
Kidete	5	-	5	3.5 %
Kilosa Mjini	5	2	7	2.7 %
Mikumi	4	-	4	2.1 %
Kidodi	14	-	14	4.6 %
Masanze/ Ulaya	11	3	14	4.6 %
Total District	102	10	112	3.8 %

Table 7 : Transition to secondary education 1981/1982

Zone	Std. VII 1981	Admitted Form I in 1982 - Total	Transition ratio	Total transition ratio to second. & TTC
North	1 405	35		2.6 %
North-East	275	14		5.1 %
Kimamba	580	11		1.9 %
Kidete	234	5		2.1 %
Kilosa Mjini	348	4		1.1 %
Masanze/Ulaya	459	2		0.7 %
Mikumi	197	8		4.0 %
Kidodi	411	5		1.7 %
Total District	3 909	84		2.3 %

Complete Table 7 and compare with Table 6. Comment on the evolution of access to secondary education between 1981 and 1982.

Map No 2 : Location of complete schools & schools having sent pupils to secondary in 1981


N
CHAKWALE WARD
GAIRO WARD
IYOGWE WARD
MAGUBIKE WARD
MAMBOYA WARD
RUBEHO WARD
CHAGONGWE WARD
MAGOLE WARD
CHANJALE WARD
MSOWERO WARD
RUDEWA WARD
LUMBIJI WARD
KIDETE WARD
CHANZURU WARD
MASANZE WARD
MABWEREBWERE WARD
LUMUMA WARD
ZOMBO WARD
ULAYA WARD
ULELING'OMBE WARD
KISANGA WARD
MALOLO WARD
MIKUMI WARD
KIDODI WARD
VIDUNDA WARD

There is one public secondary school in Kilosa District. It is a boarding school with an agricultural bias. No primary school leaver selected in 1981 or 1982 has been sent to Kilosa secondary school, but in the future it could have a more local catchment area.

Using data shown in Tables 8, 9 and 10, compute :

- the percentage of girls by grade and total (1981) ;
- the percentage of over-aged pupils (17 years old and older) ;
- the promotion and drop-out ratios.

Comment.

Note : No information is available on the private secondary school located in Kilosa Mjini.

Table 8 : Enrolment in Kilosa secondary school

1981	Form I			Form II			Form III			Total		
	Total	Girls	%	Total	Girls	%	Total	Girls	%	Total	Girls	%
Total enrolment	128	63		253	127		117	58		498	248	
Boarders	128	63		252	127		117	58		497	248	
Repeaters	-	-	-	-	-	-	-	-	-	-	-	-

Table 9 : Enrolment by age - Kilosa secondary school (1981)

14	15	16	17	18	19	20	21	22	Total
3	18	69	156	123	81	40	7	1	498

% of over-aged pupils =

Table 10 : Kilosa secondary school - 1980 enrolment

	Form I	Form II	Form III	Form IV	Total	Kibiti students accommodated in school	Grand Total
Total enrolment	252	126	-	122	500	130	630

SOLUTION TO EXERCISE Nº 4

DIAGNOSIS OF ENROLMENTS
(Secondary)

Table 1 : Literacy, post-literacy and other adult education programmes

Zones	Nº of schools surveyed	Number of schools organizing :					
		Literacy courses		Post-literacy courses		Other adult education programs	
		nº	%	nº	%	nº	%
North	38	38	100.0	34	89.4	-	-
North-East	9	9	100.0	5	55.5	-	-
Kimamba	9	9	100.0	1	11.1	-	-
Kidete	11	11	100.0	9	81.8	2	Dom. Science
Kilosa Mjini	9	9	100.0	1	11.1	1	Carpen.-DomSc.
Masanze/Ulaya	17	17	100.0	3	17.6	1	Carpen.-DomSc.
Mikumi	12	12	100.0	2	16.7	1	Carpentry
Kidodi	14	14	100.0	2	14.3	1	Carpentry
Total	119	119	100.0	57	47.9	6	

Literacy courses - 1981

Table 2 : Enrolment and attendance in literacy courses

Zone	Illiterates enrolled Total	Average attendance Total	Rate of attendance %
North Gairo	9 386	High non-response	76.3(1)
North-East	2 499	2 174	87.0
Kimamba	5 483	3 974	72.4
Kidete	2 617	1 948	74.4
Kilosa Mjini	1 943	1 528	78.7
Masanze/Ulaya	4 610	3 398	73.7
Mikumi	2 945	2 323	78.9
Kidodi	1 678	1 152	68.7
Total District	31 161	16 497 + NR	75.9(1)

(1) Computed only for those schools which gave information on average attendance.

Post-literacy courses

Table 3 : Enrolment and attendance in post-literacy courses

Zone	Adults enrolled			Average attendance			Rate of attendance
	Level 1	Level 2	Total	Level 1	Level 2	Total	
North Gairo	2 435	2 269	4 704	1 839 - NR	1 477 - NR	3 316	80.2 %(1)
North-East	351	187	538	NR	NR	NR	NR
Kimamba	106	120	226	15	17	32	14.2 %
Kidete	702	496	1 198	569	444	1 013	84.5 %
Kilosa Mjini	106	70	176	85	63	148	84.1 %
Masanze Ulaya	35	73	108	NR	NR	NR	NR
Mikumi	23	31	54	19	21	40	74.1 %
Kidodi	137	99	236	135	97	232	98.3 %
Total district	3 895	3 345	7 240	not available			n.a.

(1) Computed only for those schools which gave information on average attendance.

Literacy courses : Results of August 12th Examination

Table 4 : Results obtained in the literacy examination, August 1981

Zones		Adults required to attend the examination (1)	Adults who sat the examination (2)	(2)/(1)	Level attained				
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	%		100%		23.6%	21.9%	21.3%	18.1%	15.2%
N.East	nº	3 351	2 772	82.7%	600	688	517	612	355
	%		100%		21.6%	24.8%	18.6%	22.1%	12.8%
Kimamba	nº	5 768	4 419	76.6%	1174	1126	885	666	568
	%		100%		26.6%	25.5%	20.0%	15.1%	12.8%
Kidete	nº	3 442	3 199	92.9%	886	910	496	504	403
	%		100%		27.7%	28.5%	15.5%	15.8%	12.5%
Kilosa Mjini	nº	2 226	2 113	94.9%	604	439	373	424	273
	%		100%		28.6%	20.8%	17.7%	20.0%	12.9%
Masanze/Ulaya	nº	6 712	6 208	92.5%	2059	1595	940	974	640
	%		100%		33.1%	25.7%	15.2%	15.7%	10.3%
Mikumi	nº	3 929	3 217	81.9%	725	738	547	571	636
	%		100%		22.5%	22.9%	17.0%	17.8%	19.8%
Kidodi	nº	3 807	3 062	80.4%	773	619	565	690	415
	%		100%		25.3%	20.1%	18.5%	22.5%	13.6%
Total District	nº	42 286	35 628	84.3%	9328	8442	6588	6368	4902
	%		100%		26.2%	23.7%	18.5%	17.9%	13.8%

Source : Survey on 119 primary schools.

Table 5 : Transition to secondary education 1981/1982

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Kidete	234	5	2.1 %	2.1 %
Kilosa Mjini	348	4	1.1 %	1.1 %
Masanze/Ulaya	459	2	0.4 %	0.7 %
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Total District	3 909	84	2.2 %	2.3 %

Table 6 : Enrolment in Kilosa secondary school

1981	Form I			Form II			Form III			Total		
	Total	Girls	%	Total	Girls	%	Total	Girls	%	Total	Girls	%
Total enrolment	128	63	49.2	253	127	50.2	117	58	49.5	498	248	49.8
Boarders	128	63	49.2	252	127	50.2	117	58	49.5	497	248	49.8
Repeaters	-	-	-	-	-	-	-	-	-	-	-	-

Table 7 : Enrolment by age - Kilosa secondary school (1981)

14	15	16	17	18	19	20	21	22	Total
3	18	69	156	123	81	40	7	1	498

$$\% \text{ of over-aged pupils} = \frac{408}{498} = 81.9\ \%$$

Table 8 : Kilosa secondary school : promotion and drop-out ratios

	Form I - II	Form II - III
Promotion ratio	100.4 %	92.9 %
Repetition ratio	-	-
Drop-out ratio	0.4%	7.1 %

LECTURE Nº VII

DIAGNOSIS OF THE QUALITY OF THE EDUCATIONAL SERVICES

by

G. Carron

The analysis of the quality of the educational services raises various problems of a conceptual and methodological order.

Firstly, what do we mean by quality of a service ? The answer to this question depends of course on the criteria used. One may very well prefer an old school with trees in the playground to a modern one with only a concrete playground, becaues the former has more charm and the pupils are closer to nature. In that case, one will turn a blind eye to the fact that the modern one is more functional than the older establishment.

Generally, though, quality is assessed on the basis of results achieved. Unfortunately, research has not yet progressed sufficiently to tell us what makes one school produce better results than another. Is it the qualifications of the teachers, the sophistication of its equipment, or a certain social climate ? In the absence of any clear answer, the problem of the choice of indicators of quality remains an open one.

This problem is further complicated by the fact that there is quite probably a phenomenon of thresholds, equally little explored, at work. It is quite possible that,below a certain level of quality, certain factors really do affect results, whereas above this threshold the additional contribution is negligible or even nil.

It should be pointed out, however, that in many countries the disparities are so great that their reduction is imperative not only for educational reasons but also for other reasons - health, political or quite simply human. Even in such cases, the aim of equalization remains hard to define : to begin with, what is to be the standard towards which equalization measures ought to aim ? Should the standard be set by the best schools in the country ? Is there a minimum quality below which no one should fall, and if so how are we to define it ? In fact, we find that "improvements" in the school service usually occur without any clear policy behind them, and often on the basis of comparisons with the situation in the so-called "more advanced" countries. Even so, it would appear to be essential that any policy in this sphere be guided by a detailed examination of the desirable characteristics of a good-quality school adapted to the needs and situation of the country concerned.

Here, however, a second difficulty arises. We cannot conceive of equalization in education as a mere levelling process. It seems nonsensical to lay down the same standards throughout when physical and human situations differ from one region to the next. So, how are we to achieve equality while respecting diversity ? This question brings us back once more the problem of a minimum standard and of the essential indicators of quality.

I. A GENERAL PROPOSAL FOR CLASSIFYING INDICATORS OF QUALITY (1)

A first distinction to be introduced is between formal quality and quality in practice. Formal quality is a static notion referring to the external characteristics of a service. From the point of view of the different clientèles, it indicates the kind of service it is possible to receive from it. Actual quality is a dynamic notion that refers to the functioning of a service and thereby indicates the service clients actually receive.

A. Indicators of formal quality

To identify possible indicators of formal quality, we may begin by breaking the school system down into its component parts. We generally distinguish between three broad categories : staff, buildings and equipment. However, other less obvious categories may also be added.

1. Staff

What determines the quality of a teacher ? If we rely on the traditional view, which serves to underpin salary scales moreover, we start with length of general education and then go to teacher training (which is frequently inversely proportional to the former), and lastly actual teaching experience. Doubts have been expressed about each of

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(1) Based on : G. CARRON and TA NGOC CHAU, Reduction of regional disparities / the role of educational planning, Paris, Unesco Press/IIEP, 1981

these indicators. One possible improvement might be to examine the composition of the teaching staff for each school. We might, in fact, advance the hypothesis that the quality of a teacher is determined by the colleagues with whom he is in daily contact. In that case, the composition of the teaching staff in a given school in terms of qualification and, perhaps, age and sex, becomes an important factor. Generally, however, indicators of the quality of teachers are calculated on the basis of a series of schools rather than on a school-by-school basis.

2. Buildings and equipment

The indicators of the characteristics of schools buildings and equipment are rarely available. The quality of buildings may be defined in terms of general comfort (availability of sanitary amenities, for instance) and more specifically in terms of their pedagogic suitability (availability of specialized classrooms, for example). As for teaching facilities, we need to distinguish between school furniture and teaching aids. In the case of both buildings and equipment, we first need to measure quantities available against numbers of users. Obviously, there are enormous disparities between regions and above all between town and country, on every score (availability of sanitation, desks, textbooks, exercise books, etc.). However, the data needed to measure these disparities are seldom collected and suitably processed.

3. Organization of teaching

To these three categories of indicators we should add some others that concern the organization of teaching in the broad sense of the term. Among the most common are the number of hours of teaching in general and by subject, or again the number of pupils per teacher. It sometimes happens that certain subjects are simply dropped (physical training, manual subjects, etc.) for want of specialized teachers. A high pupil/teacher ratio therefore signifies not just overcrowded classes, but also a narrower range of subjects taught.

The teacher/pupil ratio, or the number of pupils per class, often seems to be taken as a prime indicator of quality in education. In actual fact, though, it is used so commonly primarily because it is easy to calculate. An any rate, its explanatory power in terms of results seems to be weak, which is not to say, once again, that there may not be other reasons for seeking to reduce disparities in this sphere.

4. Social composition of pupils

Another important factor, apparently, is the social composition of the pupils in a given school. In fact, several studies tend to show that this composition does affect pupils' educational attainments, and we might formulate the hypothesis that in certain countries, it may also affect retention. The degree of integration of different social or ethnic groups within schools may also prove important for other reasons, and especially to strengthen national unity. Similar reasoning could be applied concerning the composition of pupils in terms of sex.

5. Structure of the school network

Lastly, where the school system is streamed, or consists of different types of school which are arranged into a hierarchy, we would also need indicators of the network's structure. Here, the most [illegible]t indicator would be the distribution of the number of places availab[illegible] for each stream and/or type of school.

B. Indicators of actual quality

We may presume that the education policy-makers will not be satisfied with equalizing the formal quality of the educational service alone, but that they will also want to find out to what extent quality is being equalized in practice. In which case, they will want to measure factors such as :

- the intensity and the manner in which school infrastructures and facilities are being used (for example, it would no doubt be interesting to measure the extent to which facilities are used ; one's concern here however clearly differs from that which seeks sufficiently intensive use of facilities to avoid wastage of resources, which is an essentially economic concept) ;

- teachers' attitudes and methods ;
- the social climate prevailing in a school.

Analysis of these factors belongs to the realm of social research, and it raises serious conceptual problems inasmuch as we know little about the workings of the learning process. These difficulties are compounded by the fact that we must avoid confusion between equalization of treatment received and moves to establish uniformity. Since pupils are different in social background, identical treatment for all woudl be liable to produce highly uneven results. As Husén puts it : "The issue could be put in a paradoxical way be saying that one should provide equal opportunity for unequal treatment".(1) How are we to make this operational ? The choice of indicators to be developed will depend on the answer to this question.

II. DIAGNOSIS OF STAFFING CONDITIONS

The aim of this diagnosis in the context of school mapping is, of course, to gain a better understanding of the present situation, but it should also allow a reorganization of supply, which should result in a better use of teachers and in an improvement of teaching-learning conditions. We shall thus give most attention to the qualification profile, to teachers' working load, to the size of sections, etc. When norms exist, we are interested in knowing whether they are strictly observed. When there are no such standards, the assessment will consist mainly in analysing the differences between zones and schools.

A. Qualification profile of the teaching staff

There is no satisfactory measure of the quality of a teacher. One generally assumes that the higher his educational level, the more training he has received, and the more experienced he is, the better his teaching is likely to be. The qualification profile of teachers can vary enormously from one zone to another and from one school to another. It may also be very different from the average for the country as a whole.

It is therefore important that we know the reasons for these variations. They may be a result of :

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(1) T. HUSEN, Social influences on educational attainment, Paris, OECD/CERI, 1975, p. 40.

- Recruitment methods and teacher training
- Standards and criteria for establishing new teaching posts
- Rules concerning the appointment and transfer of teachers.

B. Organization of teaching

The pedagogical organization is generally regulated by a certain number of norms which are defined at the national level. These norms are frequently not observed everywhere in the same way, and more or less large differences can be observed which need to be analysed, using the appropriate indicators.

A. Norms

1. Norms concerning the number of pupils per section

A section can be defined as a group of pupils who are usually taught be one teacher. A section is not necessarily the same as a grade. When enrolments are large, a grade can be divided up into several sections. Inversely, a section can comprise several grades (multi-grade section, one-teacher school).

The system of norms regarding the number of pupils per section may be very complex in some countries. Generally speaking, however, maximum and minimum numbers are stipulated, but these norms may be different for sections composed of only one grade and for sections composed of several grades.

2. Norms concerning teaching load

(a) In primary education, each teacher is usually in charge of one class. In this case, the norms are relatively simple and are the same for all teachers. Organization becomes more complicated :

- when two languages are used and there are specialized teachers for each language ;
- when enrolments are small and it is necessary to put one teacher in charge of several classes.

(b) In secondary education, norms may vary according to teacher qualifications and also according to the subject taught.

Official standards concerning teaching load may not alway be strictly applied because of :

- the size of the school and consequently the number of sections per grade ;
- the relatively little time given to a particular subject in pupils' timetables ;
- the lack of popularity for certain optional subjects.

It may also occur that under-utilization of teachers (in relation to official standards) results from a poorly organized timetable.

We are thus mainly interested in this under-utilization of teachers and the reasons for it.

B. Indicators

Some indicators are well-known, for instance :

- Pupil/teacher ratio
- Pupil/section ratio
- Average number of teaching hours per pupil

Other indicators require further explanation.

1. Enrolments per section and average audience

Enrolments per section are important insofar as maximum and minimum numbers are usually given for the section. However, no account is taken of the fact that for certain subjects several sections may be grouped together (outdoor activities, sports,etc.) and for other activities the section may be split into smaller groups, either because girls and boys do not take the same subjects (home economics for girls and workshop for boys), or because several options exist (often a choice of foreign languages). Because of such regroupings and sub-divisions, numbers may vary according to the subject or the teaching method used.

Instead of using the notion of enrolments per section, we can use the more precise concept of average audience which can be defined as being the average number of pupils in a group being taught by one teacher, taking into account the various pedagogical arrangements and the ensuing grouping of pupils. The average audience is obtained by dividing the number of periods of teaching received by the pupils by the number of periods taught by the teachers.

2. Pupil/teacher ratio and pupil/teacher ratio in full-time equivalent

The pupil/teacher ratio only shows the average number of pupils per teacher. It gives no indication as to the actual teaching load. It does not provide therefore an exact picture of the situation, since, as we have already seen, teachers' workloads do not always correspond exactly to official norms. We must therefore calculate a pupil/teacher ratio in full-time equivalent, taking into account the total number of teaching hours given by all the teachers and the official norms concerning teaching load. The difference between the pupil/teacher ratio and the pupil/teacher ratio in full-time equivalent gives an idea of either the under-utilization of teachers, or of the proportion of part-time teachers.

III. DIAGNOSIS OF SCHOOL BUILDINGS

The inventory and analysis of the utilization of existing school buildings and equipment is a crucial stage in a school mapping work. The diagnosis should permit to determine the real number of places available in the schools and to show which schools are under- or over-utilized. It should also permit to identify the fields which should be given priority as far as renovation or extension are concerned. Lastly, the results of the inventory should be used in the preparation of proposals.

A. Analysis criteria

The diagnosis of the condition of school facilities is generally prepared by following the national standards for school buildings and the school location policy. It may, however, be useful to make a critical analysis of this policy - implicit or explicit - which should then be clearly defined as well as the order of priorities while carrying out that policy.

Of course, the standards vary according to the level of education, the country, the region, teaching methods. They concern mainly :

- minimum/maximum size of the schools
- number of pupils per class (minimum/maximum)
- average surface per pupil for teaching areas, circulation space, administration and other
- average building cost per square meter according to the type of schools, the kind of construction (traditional or prefabricated) and the geographical siting.

B. School buildings and equipment

The analysis is normally based on data coming from the most recent inventory of the buildings. It can also be based on the results of a special survey carried out for the school mapping survey.

Data can be classified under the following titles :

(a) general information
(b) land surface
(c) room facilities

(d) outside facilities

(e) teaching equipment

1. General information

- legal status : name of the school, location, type of ownership, affiliation
- type of school : level of education, boarding/semi-boarding/day school, mixed school or not, number of shifts
- other : date of building, of extension, building in process or projected, enrolments and places available.

2. Land surface

- land surface for school buildings
- land surface for agricultural and gardening work, etc...
- land surface for sports equipment

3. School facilities

- type and condition : type of construction and rooms condition, number of stories, etc...
- number of school rooms : general, special (laboratories, workshops), others with number of places available and surface
- other construction : administration, staff rooms, offices, dining and kitchen accommodation, circulation space and warehouses, playground, etc

4. Outside facilities

- water, electricity, heating, telephone, etc...

5. Teaching equipment

- laboratory equipment
- audio-visual equipment (television, radio, tape recorder, overhead projector, slides, etc...)

From these data, certain indicators can be calcultated, among which :

- average surface per pupil for general teaching area
- average surface per pupil for specialized teaching area
- average surface of general school rooms

.../...

- average surface of specialized school rooms
- percentage of of school rooms to be rebuilt or renovated
- the quality of construction
- the availability of equipment (percentage of schools)

The analysis should be carried out according to the size of schools.

c. Utilization

It is advisable that schools and equipement be used as intensively as possible, not only by pupils regularly enrolled, but also whenever possible by non-school population. The rate of utilization could be increased either by extending the utilization time or by allowing access to the schools and sports equipment by the community.

To measure the utilization of schools and equipment various indicators can be calculated :

a) The time utilization rate (TUR)measures the percentage of effective teaching hours over official hours of use

Example : The official regulation is that every classroom should be used 35 hours per week (5 days of 7 hours each), but if a given room in used only during 25 hours, the time utilization rate equals : $\frac{25 \times 100}{35} = 71\ \%$

This indicator, however, does not show whether the classroom is used at full capacity.

b) The space utilization rate (SUR) compares the average size of the classes occupying a classroom and its theoretical capacity.

$$\text{SUR} = \frac{\text{average number of pupils attending}}{\text{places available in classrooms}}$$

Example : A classroom built for 20 pupils is occupied on average by only 10 pupils. In this case, the space utilization rate is : $\frac{10 \times 100}{20} = 50\ \%$

c) The global utilization rate gives the percentage ratio of the number of hour-places occupied and the number of theoretical hour-places.

$$\text{GUR} = \frac{\text{average number of pupils attending} \times \text{number of hours of use per week}}{\text{number of places available in the classrooms} \times \text{theoretical time of use per week}}$$

$$\text{GUR} = \text{TUR} \times \text{SUR}$$

Example : In our previous examples, the total utilization rate would be $\frac{10}{20} \times \frac{25}{35} \times 100 = 35\ \%$

Utilization rates should be computed separately for general classrooms, specialized classrooms (art room, geography room), laboratories, workshops, etc...

Given the organizational difficulties for time-tables, it is not easy to reach a time utilization rate of over 80 %. In fact, the situation varies according to the type of rooms and the school size.

Table 1. Total utilization rates (percentage) for specialized and general classrooms, 1970/71, County Sligo, Ireland

Name of school	Percentage pupil-place use of classrooms				
	Science	Workshop	Language laboratory	Home economics	General
Summerhill	90	90	90	-	90
Ursuline Convent	100	33	100	77	60
Mercy Convent	74	80	-	37	89
Grammar school	105	-	-	49	105
Vocational school	44	60	30	71	54
Mercy Convent	76	-	-	66	82
Vocational school	65	98	-	35	140
Marist Convent	120	-	-	64	143
Vocational school	68	83	-	19	41
Benada	68	-	-	74	95
Convent	38	47	-	69	84
Vocational school	83	91	-	52	123
Mercy Convent	99	26	-	52	71
Vocational school	40	39	-	35	161
Vocational school	61	68	-	32	102
Vocational school	33	59	-	37	85

The following diagram shows that it is difficult to achieve full utilization of specialized classrooms (laboratories, workshops) in small schools. It can be seen that given the curriculum and the requirements of different kinds of accommodation, an acceptable time utilization rate only becomes possible around the 320 enrolment mark.

.../...

EXERCISE Nº 5

ANALYSIS OF THE TEACHING STAFF

I. Primary Education

(1) Qualification of teachers

There are four categories of teachers :

- Grade II (IIb, IIc, IId) teachers are either diploma-holders, university graduates or teachers who have been promoted from lower grades on the basis of merit ;
- Grade IIIa : Form IV leavers with two years' academic and professional training ; one year is spent at the College of National Education, the other in the field ;
- Grade IIIb : by promotion from Grade IIIc ;
- Grade IIIc : Standard VII leavers with three years' training - two years in teacher training colleges and one year in the field in practice teaching.

One has access to a certain category either by training or by promotion. After five years of service, a teacher is eligible for promotion (on the basis of merit) to the above category.

Complete the following tables.

Table 1 : Qualification and training of primary school teachers by zone

Zone		Category of teachers				Total nº of teachers	Training of teachers			
		II	IIIa	IIIb	IIIc		II	A	B	C
North	nº	35	39	27	336	437	not available for all schools			
	%									
North-East	nº	5	9	9	76	99	"		"	
	%									
Kimamba	nº	14	15	10	87	126	"		"	
	%									
Kidete	nº	10	9	5	56	80	-	9	-	71
	%									
Masanze/ Ulaya	nº	9	21	6	124	160	not available for all schools			
	%									
Mikumi	nº	9	5	6	75	95	-	7	1	87
	%									
Kidodi	nº	17	19	3	70	109	-	25	-	84
	%									
Kilosa	nº	20	15	11	48	94	-	24	2	68
	%									
Total District	nº	119	132	77	872	1 200	not available			
	%									

Table 2 : Experience of teachers in primary education (schools surveyed)

Zone	Total nº of teachers	Average experience	Teachers having one year or less teaching experience nº	%
North	285	4.6	88	
North-East	84	4.7	16	
Kimamba	99	4.3	23	
Kidete/Zomba	75	5.4	13	
Masanze/Ulaya	145	4.0	44	
Mikumi	92	4.2	18	
Kidodi	109	5.9	23	
Kilosa	94	6.3	17	

(2) Staffing ratio

In primary schools, Standards I and II are taught on a half-day basis: they receive 6 periods of 30-minute teaching per day; while pupils in other standards receive 9 periods of 40 minutes per day (3 hours' teaching instead of 6 hours). Some schools have kept half-day teaching in Standards III and IV (44.6% of the schools surveyed in the district). Others have introduced a double-shift system because of the lack of classroom facilities. They thus teach less periods to all standards.

In a typical one-stream school, the same teacher teaches Standards I and II, i.e. 60 periods of half-an-hour each per week (30 hours). The other teachers teach on a subject basis to different classes and standards. They also participate in literacy and post-literacy courses (normally 3 sessions per week of one or two hours each).

The official staffing ratio for a full primary school is the following :

Standard I	1 stream	1 C teacher
Standard II	1 stream	
Standard III	1 stream	1 C teacher
Standard IV	1 stream	1 C teacher
Standard V	1 stream	2 A teachers
Standard VI	1 stream	1 A and 1 C teacher
Standard VII	1 stream	1 A teacher
	7 streams	8 teachers

Complete Table 3 and comment.

Table 3 : Pupil/teacher ratio in primary education

Zone	Enrolment	Total nº of streams	Total nº of teachers	Enrolment per stream	Nº of streams per teacher	Pupils per teacher	Averag nº of hours taught week
North	19 280	529	437 + NR	36.4	1.20	43.7	*
North-East	4 464	122	99 + NR	36.6	1.15	42.1	*
Kimamba	6 238	166	126 + NR	37.5	1.29	48.6	*
Kidete	3 099	84	80		1.05		19.6
Kilosa Mjini	3 746	94	94		1.00		17.8
Masanze Ulaya	5 893	165	160		1.03		*
Mikumi	3 306	97	95		1.02		17.3
Kidodi	5 358	125	109		1.14		20.2
Total district	51 384	1 382	1 200 + NR	37.1	1.14	42.1	*

* Information not available for all schools

Table 4 : Literacy courses - Teaching staff

Zone		Teaching staff in literacy courses						TOTAL	Training			
		Primary school teacher	Pupils	Party and mass organization	Government officer	Religious officer	Volunteers		Primary school teacher	Below Std. VII	Std. VII	Form I to Form IV
North	nº	65	4	-	-	2	593	664	65	320	279	-
	%	9.8	0.6	-	-	0.3	89.3	100	9.8	48.2	42.0	-
North-East	nº	40	28	7	-	-	113	188	40	66	82	-
	%											
Kimamba	nº	79	-	2	-	-	194	275	79	130	65	1
	%											
Kidete	nº	40	6	1	2	-	152	201	40	111	50	-
	%											
Masanze/ Ulaya	nº	117	-	1	-	2	243	363	117	165	80	1
	%											
Mikumi	nº	71	-	2	1	-	119	193	71	45	75	2
	%											
Kidodi	nº	92	-	-	-	-	155	247	92	85	70	-
	%											
Kilosa	nº	73	-	-	-	-	77	150	73	46	31	-
	%											
TOTAL	nº	577	38	13	3	4	1 646	2 281	577	968	732	4
	%	25.3	1.7	10.6	0.1	0.2	72.1	100	25.3	42.4	32.1	0.2

Source : Survey on 119 primary schools.

Exercise 5

Exercise 5

II. Secondary Education - Kilosa secondary school 1981

Enrolment : 498

Total number of teachers : 21

Table 5 : Kilosa secondary school - Qualification of teachers (training)

	Men	Women	Total	Arts teachers	Science teachers
Graduates	3	-	3	2	1
Diploma Holders	6	8	14	3	11
Grade A	1	1	2	2	-
Other	1	1	2	2	-
Total	11	10	21	9	12

Table 6 : Kilosa secondary school

Teacher	Number of periods taught	Number of years' experience
1	6	1
2	18	3
3	24	1.25
4	24	1.25
5	24	2
6	13	3
7	12	1.25
8	35	1
9	28	1
10	10	3
11	28	2
12	11	2
13	16	7
14	36	7
15	39	1
16	24	2.5
17	18	9
18	60	9
19	18	9
20	10	1.5
21	18	1

Average number of periods taught per teacher =

Number of teachers full-time equivalent =

Pupil/teacher ratio =

Full-time equivalent pupil/teacher ratio =

Average number of years' experience of a teacher =

Note : A full-time teacher should teach 24 periods per week.

SOLUTION TO EXERCISE Nº 5
ANALYSIS OF THE TEACHING STAFF

I. Primary Education

(1) Qualification of teachers

Table 1 : Qualification and training of primary school teachers by zone

Zone		Category of teachers				Total nº of teachers	Training of teachers			
		II	IIIa	IIIb	IIIc		II	A	B	C
North	nº	35	39	27	336	437	not available for all schools			
	%	8.0	8.9	6.2	76.9	100.0				
North-East	nº	5	9	9	76	99		"	"	
	%	5.0	9.1	9.1	76.8	100.0				
Kimamba	nº	14	15	10	87	126		"	"	
	%	11.1	11.9	7.9	69.0	100.0				
Kidete	nº	10	9	5	56	80	-	9	-	71
	%	12.5	11.3	6.2	70.0	100.0		11.3		88.8
Masanze/ Ulaya	nº	9	21	6	124	160	not available for all schools			
	%	5.6	13.1	3.8	77.5	100.0				
Mikumi	nº	9	5	6	75	95	-	7	1	87
	%	9.5	5.3	6.3	78.9	100.0		7.4	1.1	91.6
Kidodi	nº	17	19	3	70	109	-	25	-	84
	%	15.6	17.4	2.8	64.2	100.0		22.9		77.1
Kilosa	nº	20	15	11	48	94	-	24	2	68
	%	21.2	15.9	11.7	51.1	100.0		25.5	2.1	72.3
Total District	nº	119	132	77	872	1 200	not available			
	%									

Table 2 : Experience of teachers in primary education (schools surveyed)

Zone	Total nº of teachers	Average experience	Teachers having one year or less teaching experience	
			nº	%
North	285	4.6	88	30.8
North-East	84	4.7	16	19.0
Kimamba	99	4.3	23	23.2
Kidete/Zomba	75	5.4	13	17.4
Masanze/Ulaya	145	4.0	44	30.3
Mikumi	92	4.2	18	19.5
Kidodi	109	5.9	23	21.1
Kilosa	94	6.3	17	18.1

Table 3 : Pupil/teacher ratio in primary education

Zone	Enrolment	Total nº of streams	Total nº of teachers	Enrolment per stream	Nº of streams per teacher	Pupils per teacher	Average nº of hours taught/ week
North	19 280	529	437 + NR	36.4	1.20	43.7	*
North-East	4 464	122	99 + NR	36.6	1.15	42.1	*
Kimamba	6 238	166	126 + NR	37.5	1.29	48.6	*
Kidete	3 099	84	80	36.8	1.05	39.8	19.6
Kilosa Mjini	3 746	94	94	39.8	1.00	39.8	17.8
Masanze Ulaya	5 893	165	160	35.7	1.03	36.8	*
Mikumi	3 306	97	95	34.1	1.02	34.8	17.3
Kidodi	5 358	125	109	42.8	1.14	49.1	20.2
Total district	51 384	1 382	1 200 + NR	37.1	1.14	42.1	*

* Information not available for all schools

Table 4 : Literacy courses - Teaching staff

Zone		Teaching staff in literacy courses						TOTAL	Training			
		Primary school teacher	Pupils	Party and mass organization	Government officer	Religious officer	Volunteers		Primary school teacher	Below Std. VII	Std. VII	Form I to Form IV
North	nº	65	4	-	-	2	593	664	65	320	279	-
	%	9.8	0.6	-	-	0.3	89.3	100	9.8	48.2	42.0	-
North-East	nº	40	28	7	-	-	113	188	40	66	82	-
	%	21.3	14.9	3.7	-	-	60.1	100	21.3	35.1	43.6	-
Kimamba	nº	79	-	2	-	-	194	275	79	130	65	1
	%	28.7	-	0.7	-	-	70.6	100	28.7	47.3	23.6	0.4
Kidete	nº	40	6	1	2	-	152	201	40	111	50	-
	%	19.9	3.0	0.5	1.0		75.6	100	19.9	55.2	24.9	-
Masanze/ Ulaya	nº	117	-	1	-	2	243	363	117	165	80	1
	%	32.2	-	0.3	-	0.5	67.0	100	32.2	45.5	22.0	0.3
Mikumi	nº	71	-	2	1	-	119	193	71	45	75	2
	%	36.8	-	1.0	0.5	-	61.7	100	36.8	23.3	38.9	1.0
Kidodi	nº	92	-	-	-	-	155	247	92	85	70	-
	%	37.3	-	-	-	-	62.7	100	37.3	34.4	28.3	-
Kilosa	nº	73	-	-	-	-	77	150	73	46	31	-
	%	48.7	-	-	-	-	51.3	100	48.7	30.7	20.6	-
TOTAL	nº	577	38	13	3	4	1 646	2 281	577	968	732	4
	%	25.3	1.7	10.6	0.1	0.2	72.1	100	25.3	42.4	32.1	0.2

Survey on 119 primary schools.

Solution no. 5

Solution nº 5

Average number of periods taught per teacher $= \frac{472}{21} = 22.4$

Number of teachers full-time equivalent $= \frac{472}{24} = 19.7$

Pupil/teacher ratio $= \frac{498}{21} = 23.7$

Full-time equivalent pupil/teacher ratio $= \frac{498}{19.7} = 25.3$

Average number of years' experience of a teacher $= \frac{68.75}{21} = 3.3$

Note : A full-time teacher should teach 24 periods per week.

EXERCISE No.6

ANALYSIS OF EDUCATIONAL SPACE

I. PRIMARY EDUCATION AND LITERACY COURSES

(1) Analyse teaching space using data given in Appendix 1, Complete Tables 1, 2 and 3. Comment.

(2) Other facilities, equipment and service available. Complete Tables 4, 5 and 6. Comment.

able 1 : Kidodi Zone - Analysis of primary education classrooms (area and state)

	Total enrolment	No. of classrooms	Total classroom area m^2	Area per pupil m^2	Area per classroom m^2	No. of classrooms according to building material					No. of classrooms according to State			
						Mud bricks & iron sheet	Burnt bricks & iron sheet	Burnt bricks & grass	Stick poles & grass	Concrete bricks & iron sheet	Very bad	Bad	Regular	Good
o.														

) Other premises used as classrooms.

able 2 : Kidodi Zone - Premises used for literacy courses

	Total number of groups	Groups meeting in classrooms	Groups meeting in private houses	Groups meeting under trees	CCM Office
No.					
%					

Exercise 6

Exercise 6

Table 3 : Whole district - Educational spaces (Primary education)

								SCHOOLS INCLUDED IN THE SURVEY			State of classroom					
Zone	Total enrolment	Number of schools	Enrolment per school	No. of complete No.	com. schools %	No. of 1 stream No.	schl. %	No.of schools	No.of streams	No. of classrooms	Very Bad	Bad	Good or regular	Classes Under tree	Other Prem. used as classrm.	Streams/ classrm.
North	19,280	66	292	36	54.5	58	87.8	38	341	214 100 %	34 15.9	56 26.2	126 57.9	6	6 1VB 5B	1.59
North-East	4.464	13	343	7	53.8	4	40.7	9	99	53 100 %	12 22.6	5 9.4	36 68.0	-	2 2 VB	1.87
Kimamba	6,238	18	347	11	61.1	12	66.6	9	107	55 100 %	11 20.0	8 14.5	36 65.5	5	-	1.95
Kidete	3,099	12	258	5	41.7	12	100.0	11	78	60 100 %	10 16.6	11 18.3	39 65.0	-	1 1VB	1.3
Kilosa	3,746	9	416	7	77.7	5	55.5	9	94	47 100 %	-	1 2.1 %	47 97.8 %	11	1 1VB	2
Masanze	5,893	20	296	12	60.0	17	85.0	17	152	110	7 6.3	28 25.5	75 68.2	11	3 2VB 1R	1.38
Mikumi	3,306	13	254	5	38.5	11	84.6	12	94	62 100 %	6 9.7	29 46.8	27 43.5	3		1.52
Kidodi	5,358	14		10		11		14	125							
Total District	51,384	165	311	93	56.4 %	130	78.7 %	119	1 090	690 100 %	89 12.9	143 20.7	458 66.4	36	22	1.58

Table 4 : Other facilities available in primary schools - Kidodi zone

	Schools having :				Total No.of schools	No. of teacher houses	No. of teachers	Teacher/Teacher House
	Headmaster's office	Staff Room	Storage Room	Teacher Houses				
Total							109	
%								

Table 5 : Teaching material available - Kidodi zone

Zone	No. of classrooms		No. of classrooms with : Blackboard		Teacher's desk	No.of streams	STREAMS WITH : Textbooks None	Insuf.	Suff.	Exercise books Insuf.	Suff.	Pens & Pencils None	Insuf.
Kidodi													
No.	89	(9)	70	(4)	31	125	8	89	29	71	54	114	11
%						100							

Exercise 6

Table 6 : Services available in primary schools (total district)

	Schools surveyed	Water	Electricity	Latrines	First aid box	School Lunch	Sport Field	Library	Agricultural land	Land for expansion
North	38	11 28.9 %	-	38 100 %	3 7.9 %	1 2.6 %	37 97.4 %	6 15.8 %	37 97.4 %	17 44.7 %
North-East	9	5 55.6 %	- -	7 77.8 %	1 11.1 %	- -	9 100 %	4 44.4 %	9 100 %	5 55.6 %
Kimamba	9	7 77.8 %	-	6 66.7 %	-	-	9 100 %	3 33.3 %	7 77.8 %	5 55.6 %
Kidete	11	8 72.7 %	- -	11 100 %	3 27.3 %	3 27.3 %	11 100 %	1 9.1 %	11 100 %	8 72.7 %
Kilosa	9	5 55.6 %	1 11.1 %	7 77.8 %	- -	- -	8 88.9 %	1 11.1 %	8 88.9 %	4 44.4 %
Masanee	17	13 76.5 %		16 94.1 %	1 5.9 %	2 11.7 %	17 100 %	4 25.5 %	17 100 %	10 58.8 %
Mikumi	12	8 66.7 %	1 8.3 %	11 91.7 %	2 16.7 %	1 8.3 %	12 100 %	5 41.7 %	11 91.7 %	6 50 %
Kidodi	14	12	1	12	4	1	13	12	12	13

Exercise 6

Exercise No.6.

II. SECONDARY EDUCATION - KILOSA SECONDARY SCHOOL

Results of the 1980 survey

Educational Spaces	No.	Area	Furniture	Equipment	Periods of utilization
Normal classrooms	7	504m^2	sufficient	insuf. textbooks	330p
Physics laboratory	1	56m^2	sufficient	spare	24p
Chemistry "	1	56m^2	sufficient	spare	39p
Biology "	1	56m^2	sufficient	spare	39p
Workshop (woodwork & metalwork)	1	168m^2	sufficient	good	0p
Fine art room	1	56m^2	sufficient	spare	24p
Library	1	96m^2	sufficient		
Other facilities (store & preparatory room) office and toilets		108m^2			
Assembly hall	1	240m^2	sufficient		
Total educational area		1 340m^2			

ADMINISTRATION SERVICES

Offices	11	
Stores	6	
Sickbay	2	
Dispensary	1	
Staffroom	1	
Bookstore	1	
Writingroom	1	
Toilets	12	
Self reliance activity school shop & canteen	1	
poultry units	5	
piggery units	1	
cow shed	1	
Total administration area		1 472m^2

BOARDING FACILITIES

Dormitories spaces = 512
Dining Hall 252m^2
Kitchen (2)
WC/Latrines 40
Laundries 2
Showers 48
Net area 522m^2

Housing of Personnel

Teachers & Ancillary staff Houses = 18
Net area 2 459m^2

Sports Field = 1 football game
3 basket ball courts
1 net ball court
2 volley ball courts

Knowing that in 1980 there was
Total enrolment = 495 students all boarders.
No. of streams = 12
No. of teachers = 19 + 1 headmaster
Ancillary staff = 26 persons.

Compute

classroom area per pupil =
specialized classroom area per pupil =
laboratory area per pupil =
total educational area per pupil =
administration area per pupil =
boarding area per boarder =
staff houses per member of staff =
Rate of utilization of classrooms =
Rate of utilization of laboratories =
Rate of utilization of free art room =
Maximum weekly school periods =

Appendix I : Data on educational space - Kidodi zone Exercise No.6.

			No. OF ROOMS ACCORDING TO BUILDING MATERIAL (walls & roofs)											LITERACY COURSES
School Code	Total enrolment stream	Classrooms No. Surface	Mud bricks &iron sheet	Burnt bricks &iron sheet	Burnt bricks grass	Stick poles & grass	Concrete bricks of stone &iron sheet	STATE	Desks & seating places	HEAD-MASTER'S OFFICE	Staff Room	Storage Room	Teachers' houses	Number of groups and premises
950	390 (9)	1 x 54m^2 3 x 47m^2 1 x 44m^2 (3 churches)	5 (3)					5B (3R)	NR	1	-	-	3	1 in classroom 6 Private houses
951	350 (9)	2x35m^2 1x48m^2 5x70m^2		5	1		2	5VB 3R	No seats or desks	-	-	-	-	1 classroom 8 private houses 1 under tree
952	646 (14)	10x54m^2	10					10R	St.I-IV no desks VI-VII insuff. desks	2	1	1	6	2 classrooms 21 under tree
930	235 (7)	3x48m^2 3x63m^2					6	6R	NR	1	1	1	3	1 classroom 6 private houses
931	320 (8)	5x54m^2 1x18m^2		6				6R	NR	-	-	1	-	2 classrooms 14 under tree
932	227 (6)	2x54m^2 4x27m^2		2		4		4 VB 2R	NR	-	1	-	-	2 classrooms 8 under tree
933	296 (8)	3x54m^2 1x48m^2 1x40m^2 1x25m^2		6				6R	NR	1	-	-	1	3 in classroom 9 under tree
934	291 (8)	4x54m^2 (1 in storeroom)		4 (1)				4R (1VB)	NR	-	-	1	2	4 classrooms 5 under tree
935	290 (8)	7x40m^2					7	7G	Sufficient 2 domestic science room and 2 workshops for post primary technical		1	2	7	1 classrooms 6 under tree
936	359 (8)	4x48m^2 (1 child care centre) (2 staffrooms = 24m^2)		4 (2)		(1)		4R (IVB) (2R)	NR	-	(2)* (24m^2)	-	-	1 classroom 4 under tree 1 CCM office
937	344 (9)	7x40m^2			7			1R 6G	Suff.	1	1	1	3	1 classroom 9 under tree
938	545 (10)	5x48m^2 (1 staffroom: 48m^2 (1 church)					5 (+2)	5R (2R)	NR	-	(1)*	-	-	17 under tree 2 private houses
939	698 (13)	8x63m^2					8	2R 6G	NR	1	1	-	2	3 private houses
940	367 (8)	1x60m^2 6x70m^2		7				7R	NR	-	1	-	3	4 classrooms 15 under tree

* = used as classrooms.

Note: State
Very bad = Need reconstruction.
Bad = Need heavy repaire
Regular = Need normal maintenance(generally without doors or windows)
Good = Need no repair.

ble 1 : Kidodi Zone - Analysis of primary education classrooms (area and state)

	Total enrol-ment	No. of class-rooms	Total class-room area m^2	Area per pupil m^2	Area per class-room m^2	No. of classrooms according to building material					No. of classrooms according to State			
						Mud bricks & iron sheet	Burnt bricks & iron sheet	Burnt bricks & grass	Stick poles & grass	Concrete bricks & iron sheet	Very bad	Bad	Reg-ular	Good
.	5,358	89 (+9 = 98)	4,551	0.85	51.1	15 (+3 = 18)	34 (+3 = 37)	8	4 (+1 = 5)	28 (+2 = 30)	9 (+2 = 11)	5	56 (+7 = 63)	19
		100				16.9 %	38.2	9.0	4.5	31.4	10.1	5.6	62.9	21.3

) Other premises used as classrooms.

ble 2 : Kidodi Zone - Premises used for literacy courses

	Total number of groups	Groups meeting in classrooms	Groups meeting in private houses	Groups meeting under trees	CCM Office
No.	158	23	25	109	1
%	100 %	14.5 %	15.8 %	69.0 %	0.6 %

Table 3 : Whole district - Educational spaces (Primary education)

								SCHOOLS INCLUDED IN THE SURVEY			State of classroom					
Zone	Total enrolment	Number of schools	Enrolment per school	No. of complete schools No.	%	No. of 1 stream schl. No.	%	No.of schools	No.of streams	No. of classrooms	Very Bad	Bad	Good or regular	Classes Under tree	Other Prem. used as classrm.	Streams/classrm.
North	19,280	66	292	36	54.5	58	87.8	38	341	214 100 %	34 15.9	56 26.2	126 57.9	6	6 1VB 5B	1.59
North-East	4,464	13	343	7	53.8	4	40.7	9	99	53 100 %	12 22.6	5 9.4	36 68.0	-	2 2 VB	1.87
Kimamba	6,238	18	347	11	61.1	12	66.6	9	107	55 100 %	11 20.0	8 14.5	36 65.5	5	-	1.95
Kidete	3,099	12	258	5	41.7	12	100.0	11	78	60 100 %	10 16.6	11 18.3	39 65.0	-	1 1VB	1.3
Kilosa	3,746	9	416	7	77.7	5	55.5	9	94	47 100 %	-	1 2.1 %	47 97.8 %	11	1 1VB	2
Masanze	5,893	20	296	12	60.0	17	85.0	17	152	110	7 6.3	28 25.5	75 68.2	11	3 2VB 1R	1.38
Mikumi	3,306	13	254	5	38.5	11	84.6	12	94	62 100 %	6 9.7	29 46.8	27 43.5	3		1.52
Kidodi	5,358	14	383	10	71.4	11	78.6	14	125	89 100 %	9 10.1	5 5.6	75 84.3	-	9 2 VB 7 R & G	1.40
Total District	51,384	165	311	93	56.4 %	130	78.7 %	119	1 090	690 100 %	89 12.9	143 20.7	458 66.4	36	22	1.58

Table 4 : Other facilities available in primary schools - Kidodi zone

	Schools having : Headmaster's office	Staff Room	Storage Room	Teacher Houses	Total No.of schools	No. of teacher houses	No. of teachers	Teacher/Teacher House
Total	6	7-9	6	9	14	30	109	3.6
%	42.9 %	50%-64.3%	42.9%	64.3%	100%			

Table 5 : Teaching material available - Kidodi zone

							STREAMS WITH : Textbooks			Exercise books		Pens & Pencils	
Zone	No. of classrooms		No. of classrooms with : Blackboard		Teacher's desk	No of streams	None	Insuf.	Suff.	Insuf.	Suff.	None	Insuf.
Kidodi													
No.	89	(9)	70	(4)	31	125	8	89	29	71	54	114	11
%	100		78.7%		34.9	100	6.4	71.2	22.4	56.8	43.2	91.2	8.8

Table 6 : Services available in primary schools (total district)

	Schools surveyed	Water	Electricity	Latrines	First aid box	School Lunch	Sport Field	Library	Agricultural land	Land for expansion
North	38	11 28.9 %	-	38 100 %	3 7.9 %	1 2.6 %	37 97.4 %	6 15.8 %	37 97.4 %	17 44.7 %
North-East	9	5 55.6 %	- -	7 77.8 %	1 11.1 %	- -	9 100 %	4 44.4 %	9 100 %	5 55.6 %
Kimamba	9	7 77.8 %	-	6 66.7 %	-	-	9 100 %	3 33.3 %	7 77.8 %	5 55.6 %
Kidete	11	8 72.7 %	- -	11 100 %	3 27.3 %	3 27.3 %	11 100 %	1 9.1 %	11 100 %	8 72.7 %
Kilosa	9	5 55.6 %	1 11.1 %	7 77.8 %	- -	- -	8 88.9 %	1 11.1 %	8 88.9 %	4 44.4 %
Masanee	17	13 76.5 %		16 94.1 %	1 5.9 %	2 11.7 %	17 100 %	4 25.5 %	17 100 %	10 58.8 %
Mikumi	12	8 66.7 %	1 8.3 %	11 91.7 %	2 16.7 %	1 8.3 %	12 100 %	5 41.7 %	11 91.7 %	6 50 %
Kidodi	14	12 85.7 %	1 7.1 %	12 85.7 %	4 28.6 %	1 7.1 %	13 92.9 %	12 85.7 %	12 85.7 %	13 92.9 %

Solution no. 6

Solution No.6.

II. SECONDARY EDUCATION - KILOSA SECONDARY SCHOOL

Results of the 1980 survey

Educational Spaces	No.	Area	Furniture	Equipment	Periods of utilization
Normal classrooms	7	504m^2	sufficient	insuf. textbooks	330p
Physics laboratory	1	56m^2	sufficient	spare	24p
Chemistry "	1	56m^2	sufficient	spare	39p
Biology "	1	56m^2	sufficient	spare	39p
Workshop (woodwork & metalwork)	1	168m^2	sufficient	good	0p
Fine art room	1	56m^2	sufficient	spare	24p
Library	1	96m^2	sufficient		
Other facilities (store & preparatory room) office and toilets		108m^2			
Assembly hall	1	240m^2	sufficient		
Total educational area		1 340m^2			

ADMINISTRATION SERVICES

Offices	11
Stores	6
Sickbay	2
Dispensary	1
Staffroom	1
Bookstore	1
Writingroom	1
Toilets	12
Self reliance activity school shop & canteen	1
poultry units	5
piggery units	1
cow shed	1
Total administration area	1 472m^2

BOARDING FACILITIES

Dormitories spaces = 512

Dining Hall 252m^2

Kitchen (2)

WC/Latrines 40

Laundries 2

Showers 48

Net area 522m^2

Housing of Personnel

Teachers & Ancillary staff Houses = 18

Net area 2 459m^2

Sports Field = 1 football game
3 basket ball courts
1 net ball court
2 volley ball courts

Knowing that in 1980 there was Total enrolment = 495 students all boarders.
No. of streams = 12
No. of teachers = 19 + 1 headmaster
Ancillary staff = 26 persons.

Compute

classroom area per pupil = 1.02m^2

specialized classroom area per pupil = 0.11m^2

laboratory area per pupil = 0.33m^2

total educational area per pupil = 2.70m^2

administration area per pupil = 2.97m^2

boarding area per boarder = 1.05m^2

staff houses per member of staff = 0.39

Rate of utilization of classrooms $= \frac{330}{7\times50} = 94.3\ \%$

Rate of utilization of laboratories $= \frac{102}{3\times50} = 68\ \%$

Rate of utilization of free art room $= \frac{24}{50} = 48\ \%$

Maximum weekly school periods = 50

LECTURE Nº VIII

INTRODUCTION TO COST CONCEPTS

by

Ta Ngoc Châu

In this lecture, we shall look first at the analysis of global expenditures and then at that of unit expenditures.

I. ANALYSIS OF GLOBAL EXPENDITURES

The analysis of global expenditures constitutes the first stage of cost analysis. It consists in assessing all expenditures devoted to the educational system or to a particular level of this system.

One of the difficulties of this type of analysis is the fact that there are often a multitude of institutions participating in the educational service and a variety of financing sources. Educational expenditures are not only Ministry of Education expenditures but also include expenditures by other ministries who have their own training institutions. Added to these are also expenditures by local authorities, private enterprise and families.

It is consequently necessary to have a very clear and precise definition of the educational service in order to identify all the institutions which make up this service and to assess which of their expenditures can be considered as being educational expenditures. According to the definition (more or less restrictive) of what is education and of what are educational expenditures, we may find ourselves with figures which can vary considerably.

A. Analysis of expenditures according to financing source

In the case of Tanzania, and considering only public sources, the financing of educational expenditures may be broken down in the following way. As can be seen, in addition to the Ministry of Education, the regions and the other ministries play a very important rôle.

Table 1. Public educational expenditures by financing source

	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Actual	1979/80 App.est.	1980/81 Estimate
A. MINISTRY OF EDUCATION						
Administration	24.1	30.6	41.8	37.8	54.1	61.7
Primary education	20.8	14.4	18.1	19.2	14.8	16.2
Secondary education	141.6	156.6	163.1	160.6	153.9	196.1
Teacher education	43.3	51.8	60.4	62.7	65.5	77.3
Higher education	106.2	114.3	119.7	157.6	195.0	208.5
Adult Education	21.3	11.9	13.6	13.8	14.3	17.0
Folk Develop. Colleges	-	6.4	9.7	10.9	10.0	11.6
Sub-total	357.3	386.0	426.4	462.6	507.6	588.4
B. REGIONS						
Administration	15.7	20.0	19.3	20.1	20.9	25.4
Primary education	228.0	358.5	601.1	649.3	762.8	837.6
Adult education	19.8	16.8	54.6	43.4	67.3	67.2
Sub-total	323.5	395.3	675.0	712.8	851.0	930.2
C. OTHER MINISTRIES						
Manpower development	9.1	17.6	20.1	34.3	40.8	42.1
Prime Minister's Office	10.1	15.8	31.2	32.3	31.0	46.9
Defence	30.5	12.8	12.2	15.8	9.1	13.7
Agriculture	27.5	23.6	26.7	18.6	21.1	19.0
Lands and Housing	0.3	4.4	13.1	16.5	21.2	22.4
Finance	13.4	9.7	12.7	14.7	19.6	19.9
Home Affairs	3.6	6.9	15.8	17.5	17.5	22.3
Health	21.6	25.1	28.9	33.4	41.0	49.9
Labour & Social Welfare	6.5	7.3	14.1	15.8	20.2	23.1
Nat. Culture & Youth	10.8	14.4	15.8	12.4	33.6	31.8
Trade	2.8	2.5	3.0	3.8	4.7	5.0
Works	0.8	2.7	4.3	5.5	9.0	9.9
Natural resources	4.1	4.4	7.4	11.8	16.1	18.6
Others	5.9	8.0	9.0	14.5	26.7	28.1
Sub-total	147.0	155.2	214.3	246.9	311.6	352.7
GARND TOTAL	827.8	936.5	1315.7	1422.3	1670.2	1871.3

Source : Ministry of Finance, Appropriation Accounts, 1975/76, 1976/77, 1977/78, 1978/79, and Budget Estimates, 1979/80, 1980/81.

B. Expenditures in current terms and in real terms

An important objective of global expenditure analysis is to examine the trend of expenditures over time. In order to describe such a trend, we can use expenditures in current terms, in other words actual expenditures as they appear in the Appropriation Accounts, in the accounts of local authorities, of schools, etc. In this case, expenditures for any given year are expressed in terms of prices of that same year (1975 expenditures in 1975 prices, 1976 expenditures in 1976 prices, etc.). However, the prices of the resources used may have varied : teaching and administrative staff salaries may have increased ; prices of teaching materials or of equipment may have risen. The increase in expenditures in current terms may therefore not correspond to the real growth in the "volume" of the educational service.

In order to have a more exact idea of the actual growth in the volume of the educational service, we have to take into account price increases. This is why we are obliged to calculate expenditures in real terms, by choosing a base year and applying the prices of the base year to all expenditures during the period under study. Therefore, if 1975 is chosen as base year, and if between 1975 and 1976 teachers' salaries increased by 5 %, in order to express 1976 teachers' salaries in 1975 prices, 1976 salaries have to be divided by a "deflator' (1.05 in the case in question) which expresses the trend in teachers' salaries. In so far as the prices of resources devoted to education do not all increase at the same rhythm, it is necessary to apply different deflators to each of the resources used. It is also possible to construct a price index for all resources used in education, which takes into account the trends in prices of these resources and with an appropriate weighting according to the relative importance of the different types of resources used. Such an index can then be used for deflating total educational expenditures.

C. Distinction between expenditures and costs

The concepts of expenditure and cost do not overlap and it is important to distinguish them clearly. Expenditures are basically an accounting concept. Only monetary transactions are considered as expenditures. In this sense, expenditures are more exact for they are never estimates but must correspond to actual payments. Such precision is illusory, however, in so far as expenditures do not cover all the resources used. Certain resources are used but, for all that, do not result in payments being made, for instance the utilization of buildings or the time students devote to their studies.

The concept of cost is an economic concept. When attempting to estimate the costs of any one service, one tries to assess all the resources which are devoted to this service. In certain cases, these resources correspond to expenditures : in others, they do not and it is necessary to estimate indirectly the cost. One way of doing so is by evaluating the opportunity cost. The utilization of resources for a given activity corresponds always to an opportunity cost, in so far as these resources could be used for another purpose. Therefore, in principle, a student has the choice between continuing his studies or finding straightaway a paid job. The opportunity cost of the time is spent studying can thus be estimated by the "income forgone" which corresponds to the remuneration which he had to forgo to continue his studies.

In order to obtain the cost of a service, it is consequently necessary to make certain estimations. These estimations are justified however, for in this way all resources used are covered and not simply those which correspond to monetary payments. It is preferable to base any comparison of two activities on costs rather than on expenditures. In fact, one can imagine that the proportion of resources used which correspond to monetary payments (and consequently to expenditures) is very high in the one case and very low in the other. One can see, then, that by referring only to expenditures, the comparison would be completely distorted.

D. ANALYSIS OF EXPENDITURES BY TYPE

This analysis attempts to show how resources are utilized. The first distinction to be made concerns recurrent expenditures and capital expenditures. Recurrent expenditures are those which are made regularly every year. They are in function of enrolments : the more pupils there are, the more teachers, textbooks, supplies, etc. are needed. Capital expenditures concern durable goods (buildings, equipment) which do not need to be supplied each year. Capital expenditures are in function of the increase in enrolments (building of new classrooms, provision of new laboratory equipment for additionam pupils) or because it proves necessary to replace part of the existing school facilities(rebuilding old schools, replacement of obsolete equipment). Although this distinction may seem clear, in reality it is not always quite so obvious and the boundary between recurrent and capital expenditures may sometimes seem rather blurred. In fact, the distinction made between recurrent and capital expenditures depends on the rules governing the way in which the budget is presented and this may vary from one country to another.

Under recurrent expenditures, we can distinguish :

1. Direct educational expenditures
   - Teaching staff expenditures
   - Expenditures on educational materials and supplies
   - Other teaching expenditures

2. Schools' running expenditures
   - Administrative staff expenditure
   - Service staff expenditures
   - Maintenance expenditures
   - Boarding and canteen expenditures
   - Other running expenditures

3. Social expenditures
   - Bursaries and allowances
   - Other social services.

Lecture VIII

Table 2. Recurrent expenditure on teacher education by type of expenditure (1979/80)

	Amount	%
A. Personnel		
Salaries	23 316	29.8
Travel	1 354	1.7
Sub-total	24 670	31.5
B. Training		
Course of inst.	337	0.4
Pre-service training allowance	10 324	13.2
In-service training	557	0.7
MTUU	1 058	1.4
Sub-total	12 276	15.7
C. Running of Colleges		
Transport of students	3 622	4.6
Catering expenditures	21 973	28.1
Recreation and welfare of students	69	0.1
Material and laboratory equipment	2 508	3.2
Sub-total	28 172	36.0
D. Maintenance and running expenses		
Vehicles and crafts	3 349	4.2
Machinery and equipment	45	0.1
Sub-total	3 394	4.3
E. Upkeep of establishments		
Buildings	199	0.3
Grounds and amenities	72	0.1
Improvements to buildings	1 994	2.5
Sub-total	2 265	2.9
F. Other expenditures		
Office and general	1 947	2.5
Special expenditures	939	1.2
Miscellaneous expenditure	161	0.2
Supply and ordinances	143	0.2
Hospital services	269	0.3
Grants to Institute of education	4 000	5.1
Sub-total	7 459	9.5
GRAND TOTAL	78 236	100.0

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Source: Ministry of Finance, Budget Estimates, 1979/80.

As far as capital expenditures are concerned, one can also distinguish between construction expenditures and expenditures on equipment (school furniture, laboratory equipment, etc.)

As an illustration of this, Table 2 gives recurrent expenditures by type of expenditure for teacher training in Tanzania in 1979/80.

E. Analysis of expenditures by level of education

Through a global analysis of educational expenditures, it is possible to measure the total financial effort made towards the development of education. It may be interesting to consider how this is distributed between the different levels of education and what the trend is over time. In the case of Tanzania, the trend in recent years has been as follows :

Table 3. Distribution of recurrent educational expenditures by level and type of education

(Millions of shillings)

	1975/76 Actual	1976/77 Actual	1977/78 Actual	1978/79 Actual	1979/80 App.Est.	1980/81 Estimate
I. TOTAL AMOUNT						
Administration	39.8	50.6	61.1	57.9	75.0	87.1
Primary Education	308.8	372.9	612.2	668.5	777.6	853.8
Secondary Education	141.6	156.6	163.1	160.6	153.9	196.1
Teacher Education	43.3	51.8	60.4	62.7	65.5	77.3
Higher Education	106.2	114.3	119.7	157.6	195.0	208.5
Adult Education	41.1	28.7	68.2	57.2	81.6	84.2
Folk Develop. College	-	6.4	9.6	10.9	10.0	11.6
Specialized training	147.0	155.2	214.3	246.9	311.6	352.7
Total Recurrent Exp.	827.8	936.5	1315.7	1422.3	1670.2	1871.3
II. PERCENTAGE						
Administration	4.8	5.4	4.6	4.1	4.5	4.7
Primary Education	37.3	39.8	46.5	47.0	46.6	45.6
Secondary Education	17.1	16.7	12.4	11.3	9.2	10.5
Teacher Education	5.2	5.5	4.6	4.4	3.9	4.1
Higher Education	12.8	12.2	9.1	11.1	11.7	11.1
Adult Education	5.0	3.1	5.2	4.0	4.9	4.5
Folk Develop. College	-	0.7	0.7	0.8	0.6	0.6
Specialized training	17.8	16.6	16.3	17.4	18.7	18.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ministry of Finance, Appropriation Accounts, 1975/76, 1976/77, 1977/78 1978/79, and Budget Estimates, 1979/80, 1980/81.

II. ANALYSIS OF UNIT EXPENDITURES OR COSTS (1)

The principal aims of the analysis of unit expenditures or costs are to :

1) to enable a comparison to be made of the costs of the different levels or branches of education ;
2) to identify the different factors which may influence the level of costs.

According to the type of analysis which one wishes to make, the unit of analysis may vary. If in the majority of cases this unit may be the pupil, preference may be given to the class (for expenditures of school furniture, for instance) or even the school (for example, for expenditures on sports equipment). Sometimes the graduate is also chosen, in order to take into account the duration of studies and the expenditures resulting from pupils who drop out before reaching graduation year or who do not Obtain the diploma. In the calculation of cost per graduate, all costs are imputed to the graduates which means implicitly that the training received by non-graduate pupils is without any value, a hypothesis which can obviously be questioned.

A. Recurrent unit expenditures

The costs of the different levels or branches of education can vary considerably. An idea of the extent of these variations can be obtained by calculating per pupil cost.

The variation in per pupil costs stems from a variety of factors, the main ones being :

- differences in the salaries of the different categories of teachers employed in the different levels or branches of education
- differences in the number of pupils per teacher, resulting either from the curriculum and the pedagogical organization, or from the size of the schools.

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(1) The distinction between expenditure and cost has already been made. See page 4 of this outline.

- the differences in the proportion of time accorded to the workshop or laboratory work ;
- the differences in the costs of pedagogical material or raw materials used for the training
- the proportion of boarders.

The second part of the exercise will enable you to compare recurrent expenditures in technical education, by distinguishing industrial, commercial and agricultural education.

B. Capital unit expenditures

The third part of the Exercise will allow you to analyse the main components of building unit expenditures for the different types of technical schools, again making the distinction between industrial schools, agricultural schools, commercial schools and home economics' schools.

EXERCISE Nº 7

INTRODUCTION TO COST CONCEPTS

I. Analysis of global expenditures

Table A 1 shows the trend of current capital and total expenditures from 1975 to 1980, distinguishing the Ministry of Education, the regions and other ministries.

(a) For each category of expenditure calculate the part of each financing source. Comment.

(b) For each category of expenditure, calculate the annual rate of growth of each financing source. Comment.

(c) With the knowledge that the trend of public expenditures is as follows :

(Millions of shillings)

	Recurrent	Capital	TOTAL
1975/76	3 683.9	2 083.4	5 767.3
1976/77	4 634.9	2 971.0	7 605.9
1977/78	5 363.9	3 346.2	8 710.1
1978/79	6 979.4	3 491.2	10 470.6
1979/80	7 430.1	12 690.2	20 120.3
1980/81	9 342.0	7 040.8	16 382.8

calculate the proportion of public expenditures (recurrent, capital and total) devoted to education. Comment.

This exercise was prepared by Mr. Ta Ngoc Châu.

Table A 1. Trends of educational expenditures by public financing sources 1975-1980

	1975/76 Act.exp.	1976/77 Act.exp.	1977/78 Act.exp.	1978/79 Act.exp.	1979/80 App. exp.	1980/81 Estimates
	Amount	Amount	Amount	Amount	Amount	Amount
A. RECURRENT EXP. ON EDUCATION						
Ministry of Education	357.3	386.0	426.4	462.6	507.6	588.5
Regions	323.5	395.3	675.0	712.8	851.0	930.2
Other ministries	147.0	155.2	214.3	246.9	311.6	352.7
Sub-total	827.8	936.5	1315.7	1422.3	1670.2	1871.3
B. CAPITAL EXP. ON EDUCATION						
Ministry of Education	92.6	146.0	148.5	112.1	301.0	245.3
Regions	54.8	42.8	54.2	74.3	80.0	73.3
Other ministries	53.9	36.9	51.1	37.9	229.9	262.9
Sub-total	201.3	225.7	253.8	224.3	610.9	581.5
C. TOTAL EXPENDITURE ON EDUCATION						
Ministry of Education	449.9	532.0	574.9	574.7	808.6	833.7
Regions	378.3	438.1	729.2	787.1	931.0	1003.5
Other ministries	200.9	192.1	265.4	284.8	541.5	615.6
Sub-total	1029.1	1162.2	1569.5	1646.6	2281.1	2452.8

II. ANALYSIS OF RECURRENT UNIT EXPENDITURES

Table A 2 shows the recurrent expenditures for technical education (industrial, commercial and agricultural) in 1979/80 and Table A 3 gives the enrolments on 1st March 1979 and 1st March 1980.

Calculate the unit expenditures for these three types of education. Comment.

III. ANALYSIS OF CAPITAL UNIT EXPENDITURES

Table A 4 shows the areas for construction by type of school (Industrial, agricultural, commercial and domestic science).

Given that the construction cost is 3.750 shillings per square meter, calculate the area per pupil and capital expenditure per pupil, distinguishing :

- Teaching areas
- Office and administrative area
- Sanitary area
- Staff housing area
- Boarding facilities area

Comment.

Table A.2 Recurrent expenditures of technical education (not including personnel expenditures) 1979/1980

000 shillings

	Industrial education	Commercial education	Agricultural education
1. Administration			
Office and general	104	186	212
Telephone and telegrammes	1	1	79
Electricity	918	673	1 048
Water	347	454	453
Uniforms	29	58	52
Postage	34	53	65
Sub-total	1 433	1 425	1 909
2. Maintenance			
Plant vehicles and craft	873	1 050	2 361
Machinery and equipment	3	202	61
Sub-total	876	1 252	2 422
3. Upkeep of stations and establ.			
Buildings and other establ.	312	325	461
School grounds and amenities	13	26	37
Min. improvements to buildings	373	674	1 057
Sub-total	698	1 025	1 555
4. Running of schools and colleges			
Transport of students	1 596	1 099	2 852
Catering exp.	12 466	12 430	27 100
Recreation & Welfare of stud.	17	40	50
School material & lab. equip.	1 250	1 632	2 308
Sub-total	15 329	15 201	32 310
5. Other expenditures			
Travel	337	286	650
Miscellaneous charges	-	16	11
Library & school equip.	147	537	626
Conferences	15	1	12
Course of inst.	63	-	-
Hospital services	117	87	212
Sub-total	679	927	1 511
GRAND TOTAL	19 015	19 830	39 707

Source : compiled from data contained in the Ministry of Finance, Budget Estimates, 1979/1980

Table A.3.

Enrolment in Secondary Schools by Boarding/Day, in March 1979 and March 1980

School	Enrolment in March 1979			Enrolment in March 1980		
	Boarding	Day	Total	Boarding	Day	Total
Secondary Technical/Craft						
Mazengo	927	-	927	903	-	903
Ifunda	787	-	787	782	-	782
Moshi Ufundi	832	-	832	781	-	781
Musoma	530	37	567	514	20	534
Iyunga	606	-	606	583	-	583
Mtwara Ufundi	423	-	423	420	-	420
Bwiru Wav.	296	-	296	292	-	292
Kantalamba	373	60	433	312	105	417
Songea Wav.	627	-	627	624	-	624
Shinyanga	550	-	550	549	-	549
Mwenge	527	-	527	520	-	520
Tabora Wav.	519	-	519	476	-	476
Tabora Was.	568	-	568	556	-	556
Tanga Ufundi	584	-	584	641	-	641
Kahororo	323	-	323	323	-	323
Total	8 472	97	8 569	8 276	125	8 401
Secondary Commercial						
Arusha	123	329	452	127	311	438
Ilboru	562	-	562	542	-	542
Azania	212	587	799	207	533	740
Forodhani	-	518	518	-	485	485
Kibasila	98	174	272	104	201	305
Kisutu	-	367	367	-	346	346
Tambaza	52	867	919	99	694	793
Zanaki	-	633	633	47	472	519
Dodoma	-	499	499	228	222	450
Msalato	574	-	574	558	-	558
Lugalo	152	259	411	160	248	408
Mawenzi	195	420	615	192	385	577
Moshi	714	-	714	713	-	713
Same	338	-	338	300	-	300
Umbwe	313	-	313	307	-	307
Weru Weru	607	-	607	595	-	595
Lindi	-	376	376	247	133	380
Mara	317	15	332	297	10	307
Mbeya	104	226	330	106	209	315
Kilakala	583	-	583	559	-	559
Kwiro	311	2	313	291	2	293
Morogoro	183	131	314	175	117	292
Bwiru Was.	295	-	295	295	-	295
Shinyanga Comm.	165	-	165	164	-	164
Kazima	308	266	574	303	218	521
Usagara	96	802	898	92	751	843
Bukoba	-	284	284	181	97	278
Rugambwa	531	-	531	506	-	506
Total	6 833	6 755	13 588	7 395	5 434	12 829

.../...

Source : Ministry of National Education

Table A 3. (contd.)

School	Enrolment in March 1979			Enrolment in March 1980		
	Boarding	Day	Total	Boarding	Day	Total
Secondary Agricultural/ Home Economics						
Karatu	1,467	-	1,467	430	-	430
Jangwani	-	469	469	128	316	444
Pugu	762	-	762	749	-	749
Bihawana	307	-	307	295	-	295
Mpwapwa	469	-	469	454	-	454
Iringa	308	-	308	300	-	300
Malangali	299	-	299	283	-	283
Njambe	582	-	582	583	-	583
Tosamaganga	596	-	596	469	-	469
Ashira	411	-	411	372	-	372
Lyamungo	453	-	453	437	-	437
Machame	309	-	309	299	-	299
Tarime	469	-	469	473	-	473
Loleza	315	-	315	298	-	298
Rungwe	311	-	311	300	-	300
Ifakara	493	-	493	473	-	473
Kilosa	480	-	480	500	-	500
Mzumbe	551	-	551	548	-	548
Chidya	290	-	290	292	-	292
Masasi	426	-	426	413	-	413
Mtwara Was.	297	-	297	278	-	278
Ndanda	528	-	528	513	-	513
Nganza	306	-	306	298	-	298
Nsumba	452	-	452	441	-	441
Sengerema	578	-	578	557	-	557
Bagamoyo	581	24	605	580	16	596
Minaki	434	-	434	504	-	504
Ruvu	508	-	508	463	-	463
Kigonsera	450	-	450	435	-	435
Songea Was.	573	-	573	540	-	540
Tumaini	330	-	330	329	-	329
Milambo	386	-	386	386	-	386
Korogwe	563	-	563	547	-	547
Magamba	294	-	294	281	-	281
Nguvumali	487	-	487	502	-	502
Ihungo	530	-	530	519	-	519
Nyakato	428	-	428	428	-	428
Total	17 023	493	17 516	15 697	332	16 029
Grand Total	32 328	7 345	39 673	31 368	5 891	37 259

Source: Ministry of National Education.

Accommodation Unit (No. of Places)	Area m2	Technical Secondary School Forms I-IV 4-Stream 640 Students 100 Girls		Agricultural Secondary School Forms I-IV				Commercial Secondary School Forms I-IV				Home Economics Secondary School Forms I-IV			
				4-Stream 640 Students 50% Boys		2-Stream 320 Students 50% Boys		4-Stream 640 Students 50% Boys		2-Stream 320 Students 50% Boys		4-Stream 640 Students 100% Girls		2-Stream 300 Students 100% Girls	
		No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area
Teaching Areas															
Classroom (40)	64.8	8		8		4		7	...	4		8		4	
Geography Room (40)	86.4							2	...						
" Store	21.6							1							
Physics Laboratory (40)	86.4	1		1		1		1	...			1			
" Preparatory	21.6	1		1		1		1				1			
Chemistry Laboratory (0)	86.4	1		1		1		1	...	1		1		1	
" Preparatory	21.6	1		1		1		1		1		1		1	
Biology Laboratory (40)	86.4	1		1		-		1	...			1			
" Preparatory	21.6	1		1		1		1				1			
Physics/Biology Laboratory (40)	86.4									1				1	
" " Preparatory	21.6									1				1	
Lecture/Demonstration Room (40)	108.0	1		2				2	...	1		1			
" " Store	21.6	1		1				1		1		1			
Book-Keeping Classroom (40)	64.8							2	...	1					
Typing Classroom (40)	64.8							2	...	1					
Model Office (40)	64.8							1	...	1					
" " Store	21.6							1		1					
Cookery/Nutrition Room (20)	108.0	1		1		1		1	...	1		3		2	
Needlework Room (20)	64.8	1		1		1		1	...	1		3		2	
Laundry and Store	43.2	1						1				1			
Housewifery Room (20)	64.8							1	...			1		1	
Domestic Science Lecture/ Demonstration Room (40)	108.0											1			
" " Store	21.6											1			
Arts and Music Room (40)	86.4	1		1		1		1	...	1				1	
" " " Store	21.6	1		1		1		2		1				1	
General Store	43.2	2		2		1		2		1		2		1	
Library Unit	280.8	1		1		0.5		1		0.5		1		0.5	
" Open Areas	64.8	3		3		1.5		3		1.5		3		1.5	
Agricultural Workshop Unit (including Storage) (20)	252.0			1		1									
Agricultural Laboratory (40)	86.4			1											
" " Store	21.6			1											
Drawing and Surveying (20)	86.4	4													
" " " Store	21.6	2													
Masonry Unit (incl. Stores) (20)	216.0	1													
Painting " " " (20)	144.0	1													
Plumbing " " " (20)	216.0	1													
Woodwork " " " (20)	324.0	1													
Metalwork" " " (20)	396.0	1													
Welding/Blacksmith " " (20)	216.0	1													
Automechanics " " (20)	252.0	1													
Electrical " " (20)	252.0	1													
Electronics Laboratory " (20)	128.0	1													
Total Teaching Area in m^2															

Source : Ministry of National Education, School Facilities Survey Unit.

.../...

Accommodation Unit (No. of Places)	Area m2	Technical Secondary School Forms I-IV 4-Stream 640 Students 100 Girls		Agricultural Secondary School Forms I-IV 4-Stream 640 Students 50% Boys		Agricultural Secondary School Forms I-IV 2-Stream 320 Students 50% Boys		Commercial Secondary School Forms I-IV 4-Stream 640 Students 50% Boys		Commercial Secondary School Forms I-IV 2-Stream 320 Students 50% Boys		Home Economics Secondary School Forms I-IV 4-Stream 640 Students 100% Girls		Home Economics Secondary School Forms I-IV 2-Stream 300 Students 100% Girls	
		No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area	No. of Units	Total area
Offices and Administration															
Head of School	21.6	1		1		1		1		1		1		1	
Assistant Head of School	21.6	1		1		1		1		1		1		1	
Bursar plus Store	21.6	1		1		1		1		1		1		1	
Secretary/Registrar	21.6	1		1		1		1		1		1		1	
General Office	64.8	1		1		1		1		1		1		1	
Dean's Office	10.8	2		2		2		2		2		2		2	
Student Council	21.6	1		1		1		1		1		1		1	
Staff Meeting Room	108.0	1		1		0.5		1		0.5		1		0.5	
Staff Room	21.6	1		1		1		1		1		1		1	
Dispensary	64.8	1		1		1		1		1		1		1	
Total Office/Administration Area in m^2															
Toilet Facilities															
Ablutions	43.2	4		4		2		4		2		4		2	
Teachers' Toilets	21.6	2		2		1		2		1		2		1	
Total Toilet Facilities Area in m^2															
Staff Housing															
3-Bedroom House	124.4	38		30		16		37		17		33		18	
4-Bedroom House	144.0	1		1		1		1		1		1		1	
Total Staff Housing Area in m^2															
Boarding Facilities															
Dining Hall	270.0	1		1		0.5		1		0.5		1		0.5	
Assembly Hall	216.0	1		1		0.5		1		0.5		1		0.5	
Kitchen	152.0	1		1		0.5		1		0.5		1		0.5	
Firewood Kitchen	121.5	1		1		0.5		1		0.5		1		0.5	
Dormitories and Toilets	180.0	10		10		5		10		5		10		5	
Laundry	45.0	2		2		1		2		1		2		1	
Sick Bay	72.0	1		1		0.5		1		0.5		1		0.5	
Total Boarding Facilities Area in m^2															
Grand Total Area in m^2															

Source: Ministry of National Education (School Facilities Survey Unit, and Project Implementation Section).

Note: 1/ Based on the time-tables given in Education Circular No. 4 (21 September 1979). The utilization rates are calculated on the basis of each unit being available for up to 50 periods per week. Staffing requirements are based on the assumption of an average of 24 teaching periods per week (excluding the headmaster/headmistress).

INTRODUCTION TO COST CONCEPTS

I. ANALYSIS OF GLOBAL EXPENDITURES

Table B 1 gives the main results of the analysis.

II. RECURRENT EXPENDITURES

Since the fiscal year does not correspond with the academic year, for the computation of unit expenditures we have taken the average number of students in 1979 and in 1980. Enrolments in the three types of secondary schools are as follows :

Average enrolment in 1979-80

	Boarding	Day	Total
Technical	8 374	111	8 485
Commercial	7 114	6 095	13 209
Agricultural	16 360	413	16 773

The proportion of day students is quite different according to the type of school. It reaches 46.1 % in the commercial schools but is only 2.4 % in the agricultural and 1.3 % in the technical schools.

Unit expenditures according to type of expenditures and type of school are given in Table B 2.

ble B 1. Distribution of educational expenditures by public financing sources and annual growth rate

	1975/76 Act. expend.		1976/77 Act. expend.		1977/78 Act. expend.		1978/79 Act. expend.		1979/80 App. Est.		1980/81 Estimate		Annual rate of growth
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
RECURRENT EXP. ON EDUCATION													
istry of Education	357.3	43.2	386.0	41.2	426.4	32.4	462.6	32.5	507.6	30.4	588.5	31.4	10.5
ions	323.5	39.1	395.3	42.2	675.0	51.3	712.8	50.1	851.0	51.0	930.2	49.7	23.5
er ministries	147.0	17.7	155.2	16.6	214.3	16.3	246.9	17.4	311.6	18.6	352.7	18.8	19.1
Sub-total	827.8	100.0	936.5	100.0	1315.7	100.0	1422.3	100.0	1670.2	100.0	1871.3	100.0	17.7
vernment recurrent expend.	3683.9		4634.9		5363.9		6979.4		7430.1		9342.0		20.5
rcentage of educ. expend.		22.5		20.2		24.5		20.4		22.5		20.0	
CAPITAL EXP. ON EDUCATION													
istry of Education	92.6	46.0	146.0	64.7	148.5	58.5	112.1	50.0	301.0	49.3	245.3	42.2	21.5
ions	54.8	27.2	42.8	19.0	54.2	21.4	74.3	33.1	80.0	13.1	73.3	12.6	6.0
er ministries	53.9	26.8	36.9	16.3	51.1	20.1	37.9	16.9	229.9	37.6	262.9	45.2	37.3
Sub-total	201.3	100.0	225.7	100.0	253.8	100.0	224.3	100.0	610.9	100.0	581.5	100.0	23.6
vernment capital expenditure	2083.4		2971.0		3346.2		3491.2		12690.2		7040.8		27.6
rcentage of educ. expend.		9.7		7.6		7.6		6.4		4.8		8.3	
TOTAL EXPENDITURE ON EDUCATION													
istry of Education	449.9	43.7	532.0	45.8	574.9	36.6	574.7	34.9	808.6	35.4	833.7	34.0	13.1
ions	378.3	36.8	438.1	37.7	729.2	46.5	787.1	47.8	931.0	40.8	1003.5	40.9	21.5
er ministries	200.9	19.5	192.1	16.5	265.4	16.9	284.8	17.3	541.5	23.8	615.6	25.1	25.1
Sub-total	1029.1	100.0	1162.2	100.0	1569.5	100.0	1646.6	100.0	2281.1	100.0	2452.8	100.0	19.0
ernment total expenditure	5767.3		7605.9		8710.1		10470.6		20120.3		16382.8		23.2
rcentage of educ. expend.		17.8		15.3		18.0		15.7		11.3		15.0	

rce : Ministry of Finance, Appropriation Accounts, 1975/76, 1976/77, 1977/78, 1978/79 and
Budget Estimates, 1979/80, 1980/81.

Table B 2. Unit expenditures by type of school

	Industrial	Commercial	Agricultural
Administrative	168.9	107.9	113.8
Maintenance	103.2	94.8	144.4
Upkeep of stations	82.3	77.6	92.7
Running of schools (1)	337.4	209.8	310.6
Other expenditures	80.0	70.2	90.1
TOTAL	771.8	560.3	751.6
Catering expenditures per boarder	1752.8	1747.3	1656.5

(1) Excluding catering expenditures

III. CAPITAL EXPENDITURES

The main results are given in table B 3.

AREA PER PUPIL

(in square meters)

	Technical secondary	Agricultural secondary		Commercial secondary		Home Economics	
	4 stream 640 students	4 stream 640 students	2 stream 320 students	4 stream 640 students	2 stream 320 students	4 stream 640 students	2 stream 320 students
Teaching area	6.9	3.6	4.4	3.9	4.3	3.6	4.0
Administrative area	0.6	0.6	1.0	0.6	1.0	0.6	1.0
Sanitary area	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Staff housing	7.6	6.1	6.7	7.5	7.1	6.6	7.5
Boarding facilities	4.3	4.3	4.3	4.3	4.3	4.3	4.3

CONSTRUCTION COST PER PUPIL

(in shillings)

Teaching area	25 725	13 367	16 387	14 812	16 200	13 425	14 962
Administrative area	2 278	2 278	3 937	2 278	3 937	2 278	3 937
Sanitary area	1 275	1 275	1 275	1 275	1 275	1 275	1 275
Staff housing	28 542	22 725	25 012	27 938	26 475	24 900	27 937
Boarding facilities	15 975	15 975	15 975	15 975	15 975	15 975	15 975

Accommodation Unit (No. of Places)	Area m2	Technical Secondary School Forms I-IV 4-Stream 640 Students 100 Girls		Agricultural Secondary School Forms I-IV				Commercial Secondary School Forms I-IV				Home Economics Secondary School Forms I-IV			
				4-Stream 640 Students 50% Boys		2-Stream 320 Students 50% Boys		4-Stream 640 Students 50% Boys		2-Stream 320 Students 50% Boys		4-Stream 640 Students 100% Girls		2-Stream 320 Students 100% Girls	
		No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area
Teaching Areas															
Classroom (40)	64.8	8	518.4	8	518.4	4	259.2	7	453,6	4	259,2	8	518,4	4	259,2
Geography Room (40)	86.4							2	172.8						
" Store	21.6							1	21.6						
Physics Laboratory (40)	86.4	1	86.4	1	86.4	1	86.4	1	86.4			1	86.4		
" Preparatory	21.6	1	21.6	1	21.6	1	21.6	1	21.6			1	21.6		
Chemistry Laboratory (40)	86.4	1	86.4	1	86.4	1	86.4	1	86.4	1	86.4	1	86.4	1	86.4
" Preparatory	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6
Biology Laboratory (40)	86.4	1	86.4	1	86.4	-	86.4	1	86.4			1	86.4		
" Preparatory	21.6	1	21.6	1	21.6	1	21.6	1	21.6			1	21.6		
Physics/Biology Laboratory (40)	86.4									1	86.4			1	86.4
" " Preparatory	21.6									1	21.6			1	21.6
Lecture/Demonstration Room (40)	108.0	1	108.0	2	216.0			2	216.0	1	108.0	1	108.0		
" " Store	21.6	1	21.6	1	21.6			1	21.6	1	21.6	1	21.6		
Book-Keeping Classroom (40)	64.8							2	129.6	1	64.8				
Typing Classroom (40)	64.8							2	129.6	1	64.8				
Model Office (40)	64.8							1	64.8	1	64.8				
" " Store	21.6							1	21.6	1	21.6				
Cookery/Nutrition Room (20)	108.0	1	108.0	1	108.0	1	108.0	1	108.0	1	108.0	3	324.0	2	216.0
Needlework Room (20)	64.8	1	64.8	1	64.8	1	64.8	1	64.8	1	64.8	3	194.4	2	129.6
Laundry and Store	43.2	1	43.2					1	43.2			1	43.2		
Housewifery Room (20)	64.8							1	64.8			1	64.8	1	64.8
Domestic Science Lecture/ Demonstration Room (40)	108.0											1	108.0		
" " Store	21.6											1	21.6		
Arts and Music Room (40)	86.4	1	86.4	1	86.4	1	86.4	1	86.4	1	86.4			1	86.4
" " " Store	21.6	1	21.6	1	21.6	1	21.6	2	43.2	1	21.6			1	21.6
General Store	43.2	2	86.4	2	86.4	1	43.2	2	86.4	1	43.2	2	86.4	1	43.2
Library Unit	280.8	1	280.8	1	280.8	0.5	140.4	1	280.8	0.5	140.4	1	280.8	0.5	140.4
" Open Areas	64.8	3	194.4	3	194.4	1.5	97.2	3	194.4	1.5	97.2	3	194.4	1.5	97.2
Agricultural Workshop Unit (including Storage) (20)	252.0			1	252.0	1	252.0								
Agricultural Laboratory (40)	86.4			1	86.4										
" " Store	21.6			1	21.6										
Drawing and Surveying (20)	86.4	4	345.6												
" " " Store	21.6	2	43.2												
Masonry Unit (incl. Stores) (20)	216.0	1	216.0												
Painting " " " (20)	144.0	1	144.0												
Plumbing " " " (20)	216.0	1	216.0												
Woodwork " " " (20)	324.0	1	324.0												
Metalwork" " " (20)	396.0	1	396.0												
Welding/Blacksmith " " (20)	216.0	1	216.0												
Automechanics " " (20)	252.0	1	252.0												
Electrical " " (20)	252.0	1	252.0												
Electronics Laboratory " (20)	128.0	1	128.0												
Total Teaching Area in m^2			4,390.4		2,282.4		1,396.8		2,527.2		1,382.4		2,289.6		1,274.4

Source : Ministry of National Education, School Facilities Survey Unit.

Accommodation Unit (No. of Places)	Area m2	Technical Secondary School Forms I-IV 4-Stream 640 Students 100 Girls		Agricultural Secondary School Forms I-IV 4-Stream 640 Students 50% Boys		Agricultural Secondary School Forms I-IV 2-Stream 320 Students 50% Boys		Commercial Secondary School Forms I-IV 4-Stream 640 Students 50% Boys		Commercial Secondary School Forms I-IV 2-Stream 320 Students 50% Boys		Home Economics Secondary School Forms I-IV 4-Stream 640 Students 100% Girls		Home Economics Secondary School Forms I-IV 2-Stream 320 Students 100% Girls	
		No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area	No. of Units	Total Area
Offices and Administration															
Head of School	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21,6
Assistant Head of School	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6
Bursar plus Store	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6
Secretary/Registrar	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6
General Office	64.8	1	64.8	1	64.8	1	64.8	1	64.8	1	64.8	1	64.8	1	64.8
Dean's Office	10.8	2	21.6	2	21.6	2	21.6	2	21.6	2	21.6	2	21.6	2	21.6
Student Council	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6
Staff Meeting Room	108.0	1	108.0	1	108.0	0.5	54.0	1	108.0	0.5	54.0	1	21.6	0.5	54.0
Staff Room	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6	1	21.6
Dispensary	64.8	1	64.8	1	64,8	1	64.8	1	64.8	1	64.8	1	64.8	1	64.8
Total Office/Administration Area in m^2			388.8		388.8		334.8		388.8		334.8		388.8		334.8
Toilet Facilities															
Ablutions	43.2	4	172.8	4	172.8	2	86.4	4	172.8	2	86.4	4	172.8	2	86.0
Teachers' Toilets	21.6	2	43.2	2	43.2	1	21.6	2	43.2	1	21.6	2	43.2	1	21.6
Total Toilet Facilities Area in m^2			216.0		216.0		108.0		216.0		108.0		216.0		108.0
Staff Housing															
3-Bedroom House	124.4	38	4,727.2	30	3,732.0	16	1,990.4	37	4,602.8	17	2,114.8	33	4,105.2	18	2,239.2
4-Bedroom House	144.0	1	144.0	1	144.0	1	144.0	1	144.0	1	144.0	1	144.0	1	144.0
Total Staff Housing Area in m^2			4 871.2		3 876.0		2 134.4		4 746.8		2 258.8		4 249.2		2,383.2
Boarding Facilities															
Dining Hall	270.0	1	270.0	1	270.0	0.5	135.0	1	270.0	0.5	135.0	1	270.0	0.5	135.0
Assembly Hall	216.0	1	216.0	1	216.0	0.5	108.0	1	216.0	0.5	108.0	1	216.0	0.5	108.0
Kitchen	152.0	1	152.0	1	152.0	0.5	76.0	1	152.0	0.5	76.0	1	152.0	0.5	76.0
Firewood Kitchen	121.5	1	121.5	1	121.5	0.5	60.8	1	121.5	0.5	60.8	1	121.5	0.5	60.8
Dormitories and Toilets	180.0	10	1,800.0	10	1,800.0	5	900.0	10	1,800.0	5	900.0	10	1,800.0	5	900.0
Laundry	45.0	2	90.0	2	90.0	1	90.0	2	90.0	1		2	90.0	1	90.0
Sick Bay	72.0	1	72.0	1	72.0	0.5	36.0	1	72.0	0.5	36.0	1	72.0	0.5	36.0
Total Boarding Facilities Area in m^2			2 721.5		2 721.5		1 360.7		2 721.5		1 360.7		2 721.4		1,360 7
Grand Total Area in m^2			12 587.9		9 484.7		5 334.7		10 600.3		5 444.7		9 865.1		5,461.1

Source: Ministry of National Education School Facilities Survey Unit.

Note: 1/ Based on the time-tables given in Education Circular No. 4 (21 September 1979). The utilization rates are calculated on the basis of each unit being available for up to 50 periods per week. Staffing requirements are based on the assumption of an average of 24 teaching periods per week (excluding the headmaster/headmistress).

LECTURE Nº IX

DEMOGRAPHIC ANALYSIS & SCHOOL MAPPING

PART I - POPULATION PROJECTION

by

Ta Ngoc Châu

In this section, we shall examine two important aspects, the relationship between population and the development of education in the region covered by the project on planning the location of schools, i.e. the assessment of the development of education in relation to the school-age population, on the one hand, and on the other the population projections required in the preparation of the school map.

The population projections required in the preparing of the school map are in general medium-term projections, over a ten-year period for example. In this instance, a large proportion of those who will constitute the school-age population at the horizon year are already born. Because of this, we have to project births for only a few years. Thus, if the horizon year is 1990, and the official admission age to primary school is 6 years, the only birth projections required are those for 1981, 1982, 1983 and 1984.

Estimations about future births can be made on the basis of the trend of the age structure of the female population and on the age-specific fertility rates. We should note however that the projections of the school-age population used in the drawing up of the school map are projections concerning regions and sub-regions. Apart from a few rare exceptions, there is no precise analysis of fertility at this level. Besides, considering the relative stability of fertility, and especially because of the relatively short period for which birth projections are needed, it is perhaps more convenient to start with the trend in the number of births over the past few years and to extrapolate the trends.

In fact, the most important problem is the calculation of survivors, either on the basis of the age structure of the population, if a recent populatic census is available, or from the trend of natality over past years.

To calculate the number of survivors, we need data on mortality and in particular life tables. These tables give, for one cohort (10,000 births for example), the number of survivors after one year, two years, three years, etc.

In many developing countries, reliable and complete data on mortality do not always exist. In such conditions, it is difficult to construct a complete life table. However, model life tables can be used. The best known are those compiled by the Population Division of the United Nations and those drawn up by Coale and Demeny. The compilation of these tables is based on the observation that for each mortality level, the age-specific and sex-specific mortality rates conform to a specific pattern. For each mortality level, we can thus specify the mortality characteristics for different ages.

The United Nations life tables give 24 mortality levels, each corresponding to life expectancy at birth, ranging from 20 to 73 years, but they refer to only one mortality pattern. The life tables compiled by Coale and Demeny, on the other hand, refer to four mortality models, called respectively, Model North, Model West, Model East and Model South. For each of these models, there are also 24 mortality levels.

As we have just mentioned, the mortality levels in the life tables correspond each to a specific life expectancy at birth. Life expectancy can be defined as the average number of years lived by a member of a cohort. It can be calculated either at birth or at a specific age. When the mortality data available is fragmentary, we can choose from the differer life tables the one which corresponds most closely to the mortality features of the region.

On the basis of the life table, or in other words the number of survivors at different ages, we can calculate survival rates. The survival rate at a given age is simply the proportion of the population of this age at a given date, which survives one year later at the next age. Thus, the survival rate of 5-year old children is the proportion of children aged 5 years on 1 January 1980 who survive on 1 January 1981 at the age of 6 years.

In model life tables, with the exception of the 0 to 5-year age-group, the number of survivors is only given for every five years. In the same way, survival rates are only estimated for five-year age-groups and for five-year projections. In projections of the school-age population, age-specific survival rates are required and for horizons other than five-year ones. Appendix 1 gives a method of interpolation, which allows us to calculate age-specific survival rates from the number of survivors given for five-year age-groups.

A. Projection of the school-age population from the structure by age of the population given by the census

If the census took place on 1 July 1977 and we wish to make a projection of the school-age population on 1 July 1985, we can proceed in the following way :

(1) Projection on the basis of the census data

Age on 1/7/1977	Population on 1/7/77	Survival rate	Population on 1/7/85
0	P_0^{77}	t_8^0	P_8^{85}
1	P_1^{77}	t_9^1	P_9^{85}
2	P_2^{77}	t_{10}^2	P_{10}^{85}
3	P_3^{77}	t_{11}^3	P_{11}^{85}
4	P_4^{77}	t_{12}^4	P_{12}^{85}
5	P_5^{77}	t_{13}^5	P_{13}^{85}
6	P_6^{77}	t_{14}^6	P_{14}^{85}

t_8^0 = survival rate from 0 to 8 years

P_8^{85} = 8-year old population in 1985

We have thus obtained the 8-14 year old population for the year 1985. To calculate the number of 6 and 7-years olds, we would need to make the projection from the births occurring after the census.

(2) Projection from the births occurring after the census

Period of birth	Number	Survival rate	Population on 1/7/1985
From 1/7/78 to 30/6/79	N^{79}	t_6^n	P_6^{85}
From 1/7/77 to 30/6/78	N^{78}	t_7^n	P_7^{85}

t_6^n = survival rate from birth to 6 years

B. Projection of the school-age population when no recent census is available

In this instance, the projection should be made directly from the number of births recorded in previous years. The method is the same as that given in the previous paragraph.

Appendix 1. Estimation of survival rates for specific ages for from the number of survivors

From the life table given in Appendices 2 and 3, the following data can be obtained :

N = Number of births

S_1 = Survivors after 1 year

S_2 = Survivors after 2 years

S_3 = Survivors after 3 years

S_4 = Survivors after 4 years

S_5 = Survivors after 5 years

S_{10} = Survivors after 10 years

S_{15} = Survivors after 15 years

If N is the number of births for the period t_{-1} to t_0, the number of children aged 0, 1, ... 15 years on the dates t_0, t_1 ... t_{15} (E_0, E_1, ... E_{15}) can be estimated using the following interpolation formulae:

$$E_0 = N - (N - S_1) \times 0,7$$

$$E_1 = E_0 - \left[(N - S_1) \times 0,3 + (S_1 - S_2) \times 0,6\right]$$

$$E_2 = E_1 - \left[(S_1 - S_2) \times 0,4 + (S_2 - S_3) \times 0,5\right]$$

$$E_3 = E_2 - \left[(S_2 - S_3) \times 0,5 + (S_3 - S_4) \times 0,5\right]$$

$$E_4 = E_3 - \left[(S_3 - S_4) \times 0,5 + (S_4 - S_5) \times 0,5\right]$$

$$E_5 = E_4 - \left[(S_4 - S_5) \times 0,5 + (S_5 - S_{10}) \times 0,1\right]$$

$$E_6 = E_5 - \frac{S_5 - S_{10}}{5}$$

$$E_7 = E_6 - \frac{S_5 - S_{10}}{5}$$

$$E_8 = E_7 - \frac{S_5 - S_{10}}{5}$$

Appendix 1 (contd.)

$$E_9 = E_8 - \frac{S_5 - S_{10}}{5}$$

$$E_{10} = E_9 - \left[\frac{S_5 - S_{10}}{10} + \frac{S_{10} - S_{15}}{10}\right]$$

$$E_{11} = E_{10} - \frac{S_{10} - S_{15}}{5}$$

$$E_{12} = E_{11} - \frac{S_{10} - S_{15}}{5}$$

$$E_{13} = E_{12} - \frac{S_{10} - S_{15}}{5}$$

$$E_{14} = E_{13} - \frac{S_{10} - S_{15}}{5}$$

$$E_{15} = E_{14} - \left[\frac{S_{10} - S_{15}}{10} + \frac{S_{15} - S_{20}}{10}\right]$$

The survival rate from one age to another is equal to the ratio of the number of children of each age.

Example : Survival rate from birth to 8 years $= \frac{E_8}{N}$

Survival rate from 0 to 8 years $\frac{E_8}{E_0}$ (1)

Survival rate from 1 to 8 years $\frac{E_8}{E_1}$

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(1) It should be noted that the survival rate from birth to 8 years is different from the survival rate from 0 to 8 years.

Appendix 1 (contd.)

Example : Number of girls at different ages (Model West, Level 18)

Survivors		Numbers at different ages	
N	100 000	F_0	95 979
S_1	93 996	F_1	93 260
S_2	92 820	F_2	92 540
S_3	92 260	F_3	92 069
S_4	91 878	F_4	91 724
S_5	91 574	F_5	91 490
		F_6	91 328
		F_7	91 166
		F_8	91 044
		F_9	90 842
S_{10}	90 762	F_{10}	90 698
		F_{11}	90 573
		F_{12}	90 448
		F_{13}	90 233
		F_{14}	90 198
S_{15}	90 136		

Appendix 2. Life table, Model West, Level 18

FEMALES

AGE(X)	1000 Q(X)	D(X)	1000 M(X)	l(X)	L(X)	P(X)	T(X)	E(X)	AGE(X)
0	60.04	6004	62.95	100000	95377.4	0.930240*	6249999.9	62.500	0
1	25.79	2425	6.56	93996	369741.7	0.98003**	6154622.5	65.478	1
5	8.84	810	1.78	91571	455831.7	0.99213	5784880.8	63.174	5
10	6.90	626	1.38	90762	452243.3	0.99143	5329049.1	58.715	10
15	10.26	925	2.06	90136	448366.0	0.98803	4876805.8	54.105	15
20	13.70	1222	2.76	89211	442997.2	0.98518	4428439.7	49.640	20
25	15.94	1403	3.21	87988	436433.7	0.98281	3985442.5	45.295	25
30	18.45	1598	3.72	86585	428932.3	0.97990	3549008.8	40.989	30
35	21.78	1851	4.40	84988	420310.5	0.97592	3120076.4	36.712	35
40	26.43	2198	5.36	83137	410188.8	0.96981	2699765.9	32.474	40
45	34.05	2756	6.93	80939	397805.8	0.95928	2289577.1	28.288	45
50	47.62	3723	9.76	78183	381609.0	0.94289	1891771.3	24.197	50
55	67.08	4995	13.88	74460	359814.1	0.91624	1510162.2	20.281	55
60	101.64	7060	21.42	69465	329676.3	0.87338	1150348.1	16.560	60
65	154.43	9637	33.47	62405	287932.4	0.80629	820671.8	13.151	65
70	240.15	12672	54.58	52768	232158.1	0.70747	532739.4	10.096	70
75	361.46	14493	88.24	40095	164244.8	0.45358***	300581.3	7.497	75
80	1000.00	25602	187.79	25602	136336.9	0.	136336.5	5.325	80

MALES

AGE(X)	1000 Q(X)	D(X)	1000 M(X)	l(X)	L(X)	P(X)	T(X)	E(X)	AGE(X)
0	74.30	7430	78.65	100000	94472.9	0.91630*	5883908.3	58.839	0
1	27.75	2569	7.06	92570	363675.7	0.97737**	5789435.4	62.541	1
5	9.88	889	1.99	90001	447781.7	0.99133	5425759.7	60.286	5
10	7.46	664	1.50	89112	443897.9	0.99031	4977977.9	55.862	10
15	11.94	1056	2.40	88447	439596.8	0.98561	4534080.1	51.263	15
20	16.87	1474	3.40	87391	433270.9	0.98262	4094483.2	46.852	20
25	17.90	1538	3.61	85917	425739.8	0.98089	3661212.3	42.613	25
30	20.34	1716	4.11	84379	417604.4	0.97739	3235472.4	38.345	30
35	24.93	2060	5.05	82663	408163.3	0.97117	2817868.0	34.089	35
40	32.84	2647	6.68	80602	396395.0	0.96113	2409704.6	29.896	40
45	45.10	3516	9.23	77956	380988.6	0.94541	2013309.6	25.826	45
50	64.54	4804	13.34	74440	360189.4	0.92170	1632320.9	21.928	50
55	93.01	6477	19.51	69636	331987.7	0.88634	1272131.5	18.268	55
60	136.43	8617	29.28	63159	294253.9	0.83514	940143.8	14.885	60
65	197.77	10787	43.90	54542	245743.9	0.76210	645889.9	11.842	65
70	287.91	12598	67.26	43755	187282.5	0.66039	400145.9	9.145	70
75	412.21	12843	103.84	31158	123680.0	0.41897***	212863.4	6.832	75
80	1000.00	18314	205.35	18314	89183.9	0.	89183.4	4.870	80

* P(BIRTH), ** P(0-4), *** T(80)/T(75)

Tables extracted from COALE & DEMENY, Regional Model Life Tables and Stable Populations, Princeton, 1966

Appendix 3. Number of survivors 1, 2, 3, 4 and 5 years later, from a cohort of 10,000 births, according to the different models and the different mortality levels

MODEL WEST

LEVEL	Females l_1	Females l_2	Females l_3	Females l_4	Females l_5	Males l_1	Males l_2	Males l_3	Males l_4	Males l_5
1	63483	55000	51199	48742	46883	58093	50308	46898	44665	43805
2	66538	58557	54936	52595	50824	61657	54152	50865	48712	47112
3	69481	61829	58399	56183	54506	64868	57690	54546	52488	50957
4	72064	64856	61625	59538	57958	67785	60967	57980	56024	54571
5	74427	67671	64643	62686	61205	70454	64015	61195	59348	57976
6	76602	70300	67476	65651	64270	72911	66865	64217	62482	61194
7	78614	72765	70145	68451	67169	75183	69537	67064	65445	64242
8	80482	75084	72665	71101	69918	77294	72052	69756	68253	67135
9	82226	77271	75051	73616	72530	79263	74425	72307	70919	69888
10	83857	79340	77315	76007	75017	81105	76671	74728	73457	72511
11	85388	81300	79468	78285	77389	82835	78800	77032	75875	75015
12	86829	83163	81519	80457	79654	84463	80822	79228	78184	77408
13	88169	84939	83492	82556	81848	86058	82912	81534	80632	79961
14	89452	86720	85496	84705	84106	87547	84833	83644	82866	82287
15	90661	88364	87324	86646	86127	88864	86523	85498	84826	84327
16	91823	89936	89066	88490	88041	90143	88164	87292	86720	86293
17	92934	91419	90709	90232	89854	91379	89790	89056	88561	88184
18	93996	92820	92260	91878	91571	92570	91334	90736	90321	90001
19	95006	94143	93724	93436	93201	93713	92796	92332	92002	91744
20	95966	95392	95109	94912	94749	94807	94179	93847	93606	93415
21	96907	96559	96385	96263	96160	95909	95508	95285	95121	94989
22	97738	97530	97425	97350	97286	96925	96675	96531	96422	96334
23	98484	98377	98321	98282	98248	97856	97719	97636	97573	97521
24	99106	99061	99037	99020	99006	98668	98605	98566	98535	98510

MODEL NORTH

LEVEL	Females l_1	Females l_2	Females l_3	Females l_4	Females l_5	Males l_1	Males l_2	Males l_3	Males l_4	Males l_5
1	68027	59707	54585	50719	47783	62883	54784	49855	46197	43413
2	70798	62931	58089	54433	51658	66077	58341	53637	50141	47482
3	73285	65879	61320	57878	55265	68944	61599	57133	53813	51289
4	75539	68592	64316	61087	58637	71541	64603	60373	57247	54862
5	77595	71104	67108	64091	61801	73911	67387	63419	60470	58227
6	79485	73440	69720	66912	64780	76087	69979	66265	63504	61405
7	81226	75622	72173	69569	67592	78096	72404	68942	66369	64412
8	82842	77668	74483	72078	70253	79959	74678	71477	69080	67265
9	84347	79591	76664	74454	72777	81694	76819	73854	71652	69976
10	85753	81405	78729	76708	75175	83314	78839	76117	74095	72557
11	87070	83119	80687	78851	77457	84833	80749	78266	76421	75017
12	88305	84739	82544	80886	79628	86256	82556	80386	78633	77361
13	89451	86319	84391	82936	81831	87589	84328	82344	80870	79749
14	90498	87810	86140	84874	83906	88772	85920	84186	82897	81916
15	91512	89247	87813	86714	85864	89926	87456	85954	84838	83990
16	92492	90605	89388	88447	87710	91045	89005	87707	86725	85969
17	93435	91887	90871	90078	89450	92126	90473	89366	88518	87855
18	94337	93096	92267	91615	91093	93167	91855	90937	90218	89652
19	95199	94236	93583	93064	92645	94164	93156	92416	91829	91362
20	96018	95311	94822	94432	94114	95115	94378	93811	93355	92989
21	96795	96323	95993	95727	95506	96019	95524	95126	94801	94538
22	97535	97287	97111	96968	96850	96870	96595	96365	96175	96021
23	98177	98036	97935	97852	97763	97647	97484	97341	97222	97124
24	98782	98713	98662	98620	98585	98394	98310	98234	98170	98117

Appendix 3. (contd.) Number of survivors 1, 2, 3, 4 and 5 years later, in a cohort of 10,000 births according to the different models and the different mortality levels

MODEL EAST

	Females					Males				
LEVEL	l_1	l_2	l_3	l_4	l_5	l_1	l_2	l_3	l_4	l_5
1	57215	49832	46694	44635	43206	49494	42963	40248	38524	37264
2	60670	53531	50496	48504	47123	53551	47104	44424	42721	41478
3	63820	56971	54059	52149	50823	57249	50961	48346	46686	45473
4	66712	60186	57412	55592	54329	60644	54570	52044	50441	49269
5	69382	63204	60578	58854	57659	63778	57960	55541	54005	[illegible]
6	71859	66045	63574	61953	60828	66686	61156	58857	57397	56130
7	74167	68730	66418	64902	63849	69396	64178	62006	60630	59624
8	76326	71272	69124	67714	66736	71931	67042	65009	63718	62775
9	78352	73685	71702	70400	69497	74309	69762	67872	66671	65794
10	80258	75981	74163	72970	72142	76547	72352	70608	69500	68691
11	82040	78213	76586	75518	74777	78641	74870	73302	72307	71579
12	83790	80317	78879	77935	77280	80562	77196	75797	74909	74259
13	85297	82332	81071	80244	79670	82416	79439	78201	77415	76841
14	86831	84259	83166	82449	81952	84204	81599	80516	79828	79326
15	88302	86103	85168	84555	84129	85923	83676	82742	82148	81715
16	89710	87865	87080	86565	86208	87574	85671	84879	84377	84009
17	91058	89569	88926	88498	88194	89158	87586	86933	86518	86214
18	92343	91191	90684	90341	90092	90672	89442	88918	88580	88329
19	93567	92730	92354	92096	91905	92117	91227	90827	90559	90357
20	94732	94189	93942	93769	93638	93494	92913	92637	92447	92300
21	95907	95550	95384	95266	95176	94857	94466	94271	94132	94023
22	96957	96716	96611	96536	96478	96108	95865	95738	95645	95571
23	97856	97734	97675	97633	97599	97240	97104	97029	96973	96928
24	98640	98582	98554	98534	98517	98218	98153	98115	98087	98064

MODEL SOUTH

	Females					Males				
LEVEL	l_1	l_2	l_3	l_4	l_5	l_1	l_2	l_3	l_4	l_5
1	69500	55531	49192	45845	43943	66445	53955	48194	45107	43401
2	71551	58633	52685	49544	47760	68878	57082	51641	48725	47115
3	73585	61504	55941	53005	51336	71075	59976	54857	52113	50598
4	75437	64176	58992	56254	54699	73076	62670	57869	55296	53876
5.	77135	66676	61860	59317	57872	74911	65187	60702	58298	56971
6	78702	69022	64565	62212	60875	76604	67551	63375	61137	59901
7	80153	71231	67124	64953	63722	78172	69776	65903	63828	62681
8	81504	73318	69550	67560	66429	79632	71878	68301	66384	65326
9	82766	75295	71855	70039	69007	80996	73868	70580	68818	67845
10	83935	77177	74065	72422	71489	82248	75682	72654	71030	70134
11	84956	78923	76145	74679	73845	83358	77468	74751	73294	72490
12	85953	80603	78140	76839	76100	84441	79188	76765	75466	74749
13	86925	82219	80052	78909	78259	85498	80845	78700	77549	76914
14	87870	83774	81888	80892	80326	86525	82442	80558	79548	78991
15	88786	85268	83649	82794	82308	87522	83978	82343	81467	80983
16	89673	86705	85339	84617	84207	88487	85455	84056	83307	82893
17	90529	88101	86975	86375	86029	89419	86875	85701	85073	84725
18	91361	89454	88559	88077	87791	90324	88267	87307	86788	86498
19	92285	90801	90094	89708	89474	91382	89888	89165	88762	88528
20	93199	92070	91525	91224	91036	92390	91265	90700	90377	90183
21	94110	93283	92878	92651	92507	93395	92580	92155	91906	91752
22	95013	94436	94151	93989	93883	94395	93833	93528	93345	93230
23	95904	95528	95339	95230	95158	95383	95020	94816	94690	94609
24	96774	96550	96436	96369	96324	96352	96137	96012	95933	95882

DEMOGRAPHIC DATA ON MICRO-PLANNING :

PART II : ANALYSIS OF MIGRATION

INTRODUCTION

Migration analysis is an important aspect in the preparation of the school map, as migration can have a significant effect on the demand for school places.

In order to measure the effect of such migration on the school-age population, it is necessary to have exact knowledge of migratory phenomena and detailed information, over a given period, of the origin, destination, age and sex of migrants. These data are rarely all available and the projection of migration can be a delicate problem. As we shall see, it is usually necessary to adapt the methods according to the existing data.

I. EXTENT OF MIGRATORY MOVEMENT

The most visible type of migration is of course that from rural zones to urban zones. This phenomenon is common to the majority of developing countries, where there has been a considerable population afflux to the cities and in particular to the capital.

The extent of migration towards the metropolitan centres can be seen from the following table, which gives the proportion of the 20-49 year-old female population according to place of birth for seven South American capital cities.

Table 1. Proportion of the female population, aged 20 to 49 years, according to place of birth

Place of birth	Bogota	Buenos Aires	Caracas	Mexico	Panama	Rio de Janeiro	San Jos
In the same town	23.6	51.6	26.3	44.0	44.5	48.2	48.8
In another town	15.4	16.2	29.9	28.6	19.3	42.3	19.6
In a rural area	59.9	15.9	24.6	27.6	30.0	3.4	36.8
Abroad	1.1	16.2	18.9	1.7	6.0	5.7	4.6
Unclassified	-	0.1	0.3	0.1	0.2	0.4	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : Population, No. 2 , 1970, p. 305

In all these capital cities, except for Buenos Aires, the percentage of women, aged 20-49, who were born elsewhere, exceeds 50 per cent. Also to be noted is the high proportion of women of rural origin (in the case of Bogota, the figure is 59.9 per cent).

Urban population growth resulting from migration is very frequently equally important if not more important than natural growth, namely that which corresponds to the difference between the number of birth and the number of deaths. As a result, the growth rates of the different types of centres, for instance as between metropolitan centres, centres with more than 20,000 inhabitants and those with less than 20,000 inhabitants) can vary greatly, as can be seen from the following table covering thirteen Latin American countries.

Table 2. Growth rates of total population according to the size of the population centre, for various Latin American countries, 1950-60

	Total population in 1960 (in '000)	% of the urban population		Annual growth rate between 1950 and 1960			
		1950	1960	Total	Metropolis	More than 20,000 inhab.	Less than 20,000 inhab.
Brazil	70.967	36,2	46,3	3,0	4,3	4,6	2,6
Mexico	34 923	42,6	50,7	3,0	4,6	4,7	2,3
Argentine	20.009	62,5	-	1,7	3,0	-	-
Colombia	17.485	38,9	52,0	3,3	6,8	5,8	2,3
Peru	10.364	33,4	47,4	2,4	5,1	4,6	1,8
Venezuela	7.524	53,8	62,5	3,9	5,4	5,8	2,8
Chili	7.340	60,2	68,2	2,5	4,0	3,9	1,5
Ecuador	4.581	28,5	36,0	2,9	5,4	4,8	2,4
Guatemala	4.284	25,0	33,6	3,0	4,8	5,2	2,7
Domin.Rep.	3.014	23,8	30,3	3,4	6,7	6,1	3,0
El Salvador	2.511	36,5	38,5	2,7	3,8	3,7	2,6
Costa Rica	1.325	33,5	34,5	3,8	3,7	3,7	3,9
Panama	1.076	36,0	41,5	2,9	4,1	3,6	2,5

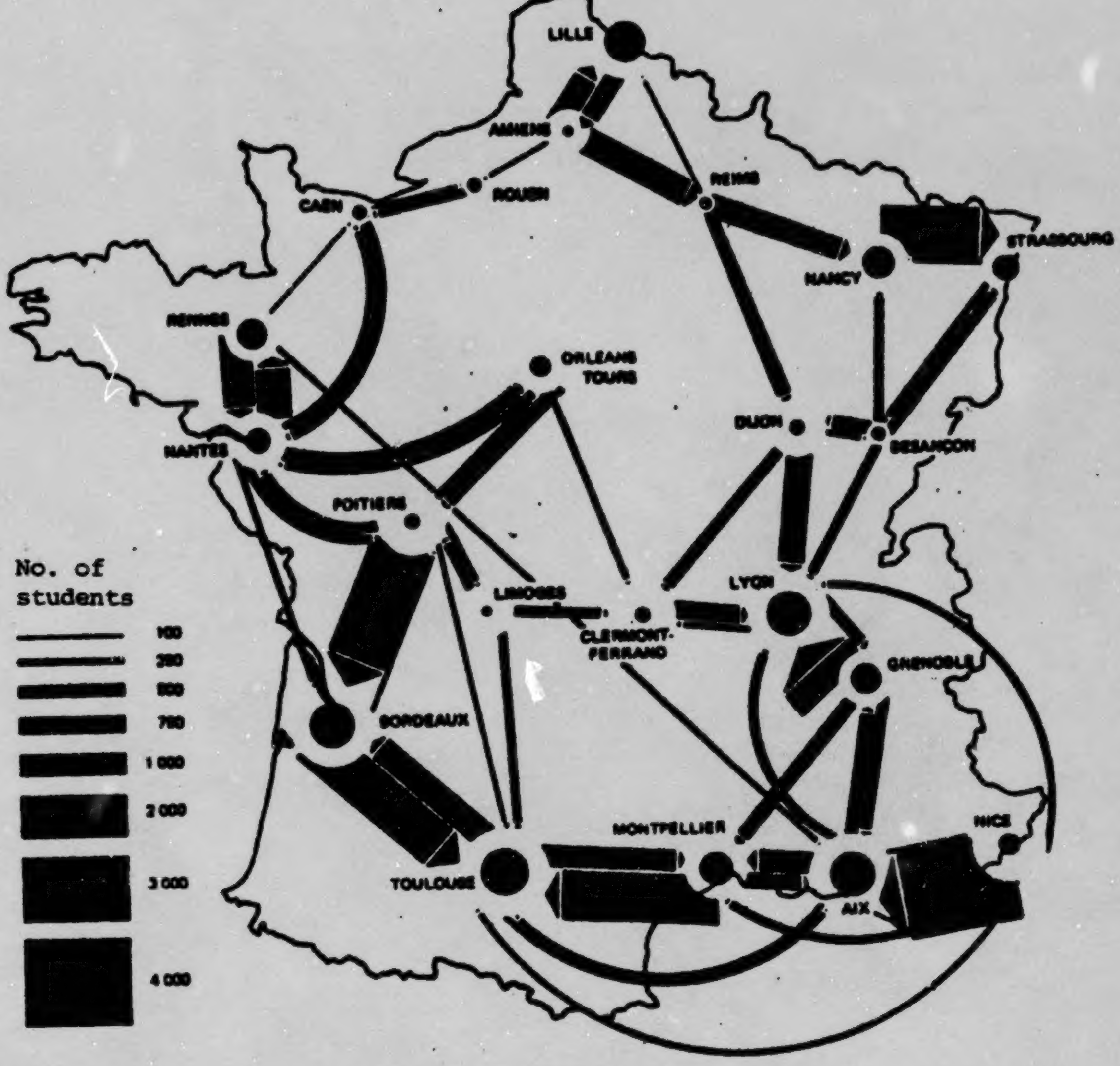
Source: Elizaga Juan C., Migraciones a las areas metropolitanas de America Latina, Santiago de Chile, CELADE, 1970

Although migration towards the cities is the one we know most about and is the most visible, there are other forms of migration, such as migration from one rural area to another, migration from rural areas to suburban areas (and vice-versa) and migration from suburban areas to urban areas (and vice-versa).

The causes of migration are many. Generally speaking, it can be explained by the search for a better standard of living (level of wages, the possibility of finding employment, availability of health, educational and cultural services, availability of accommodation, level of the cost of living, etc.). In this respect one can talk of a "push-pull" effect, namely of an attraction (to urban areas) and an effect of repulsion from rural zones (poor living conditions, lack of land, drought, etc.).

The continuation of studies (in particular of higher education) can alone be an important cause of migration, as can be seen from the following map which shows the geographical origin of students enrolled in French universities.

(An illustration of this problem with respect to Thailand is given in the Appendix.)


LILLE
AMIENS
ROUEN
CAEN
REIMS
NANCY
STRASBOURG
RENNES
ORLEANS
TOURS
DIJON
BESANCON
NANTES
POITIERS
LIMOGES
CLERMONT-FERRAND
LYON
GRENOBLE
BORDEAUX
MONTPELLIER
NICE
TOULOUSE
AIX
No. of students
100
250
500
750
1 000
2 000
3 000
4 000

Map 1. Geographical origin of students enrolled in French universities (with the exception of Paris), 1971-72

Source : Centre national de recherche scientifique, Migrations intérieures : méthode d'observation et d'analyse, Paris, 1975, p. 431

II. MEASUREMENT OF MIGRATION

Any measurement of migration supposes at the outset that the unit of analysis is defined, as well as the period of time over which the analysis will be done.

As migration is counted on the basis of "crossing" a frontier, it is necessary to define the territorial units, between which migration is to be measured. This unit can be the whole country, in which case we will be talking about international migration : it can also be the various regions of a country, in which case we are referring to inter-regional migration. We can, of course, use smaller and smaller units, and analyse for instance, inter-provincial migrations, or inter-community migration. It is evident that the smaller the units, the greater the amount of data to be collected and the more cumbersome the presentation of these same data. Table 3, which gives for Mexico the number of migrants according to their state of origin and the state to which they have migrated, is an illustration of this problem.

In preparing the school map, it is necessary to work with relatively small units. For this reason, it is practically impossible to use migration studies covering the whole country. It is preferable to refer to regional or even sub-regional studies.

Migration is moreover observed by comparing the place of residence at two different dates. It is consequently necessary to define the period which separates these two dates. Such a period can be a year (Great Britain), 5 years (United States) ; it may also be the period between two censuses (France). For convenience sake a historic date can be chosen, which makes it easier to situate it in time. For instance, in the 1966 census in Algeria, the question which was asked referred to the place of residence at the time of Independence, in other words in 1962.

of migrants in thousands, according to region of origin and region of immigration, between 1955 and 1959

	Region of origin																																TOTAL
	1					2				3		4			5				6					7		8							
	BCN	BCS	SON	SIN	NAY	COAH	CHIH	DUR	NL	TMPS	VER	AGS	ZAC	SLP	COLI	JAL	MICH	GTO	MOR	PUE	QUE	TLAX	HGO	DF	MEX	GUE	OAX	CHPS	TAB	CAMP	YUC	Q.R.	
EGION 1 :																																	
aja California Norte	3,2	3,9	12,4	13,7	4,9	1,8	2,1	3,5	0,5	0,8	0,8	0,6	5,9	0,6	1,5	25,7	10,3	7,2	0,2	1,1	-	-	0,6	5,4	1,7	0,5	0,9	0,1	0,1	0,5	0,1	-	110,7
aja California Sur	2,4	0,4	0,4	0,2	0,3	0,1	-	0,2	0,1	0,5	0,1	-	-	0,2	-	0,9	0,6	0,1	-	-	-	-	-	0,4	0,3	-	0,1	-	-	-	0,2	-	7,5
onora	3,1	0,3	1,4	18,6	2,3	1,9	6,4	2,2	0,1	0,6	0,2	0,8	1,8	0,6	0,4	6,6	2,1	1,1	0,1	0,4	0,4	0,6	0,4	2,4	1,0	0,2	1,1	-	0,1	0,2	-	-	57,4
inaloa	1,5	0,1	4,2	0,1	3,9	0,9	2,0	5,2	0,5	0,1	0,3	0,3	0,4	0,5	0,2	5,0	2,8	3,1	-	0,2	0,2	0,1	0,4	1,2	0,4	0,1	1,1	-	0,1	0,1	0,1	-	35,1
ayarit	0,7	-	0,3	3,1	0,1	0,1	-	0,9	0,4	-	-	0,2	1,6	0,1	0,1	10,2	0,7	0,8	-	-	-	-	-	0,5	0,3	-	0,1	-	-	0,1	-	-	20,3
TOTAL	10,9	4,7	18,7	35,7	11,5	4,8	10,5	12,0	1,6	2,0	1,4	1,9	9,7	2,0	2,2	48,4	16,5	12,3	0,3	1,7	0,6	0,7	1,4	9,9	3,7	0,8	3,3	0,1	6,3	1,0	0,4	-	231,0
EGION 2																																	
oahuila	0,7	-	0,1	0,1	0,1	1,5	2,1	12,9	4,7	2,8	0,3	1,0	9,2	4,0	0,1	1,4	0,6	1,6	0,1	0,3	0,1	-	0,1	1,9	1,1	-	0,4	-	-	0,1	0,1	-	46,0
hihuahua	0,8	-	1,0	1,1	0,1	10,9	1,2	19,2	0,6	1,2	1,0	5,0	11,0	0,8	-	6,0	0,9	1,6	0,1	0,4	0,1	0,1	0,2	3,0	1,3	0,2	1,0	0,1	0,2	0,1	0,1	-	69,4
urango	1,1	0,1	0,9	0,8	-	7,7	3,1	1,6	0,5	0,4	0,6	0,6	6,1	0,4	0,1	1,4	0,3	1,3	-	0,1	-	-	0,1	0,8	0,4	0,4	0,2	-	-	0,4	-	-	29,6
uevo Leon	0,5	0,1	0,4	0,1	0,1	22,8	1,7	3,3	0,6	16,2	1,3	0,9	9,2	20,4	0,2	2,9	1,5	2,8	0,1	0,9	0,4	0,1	0,4	3,8	1,0	0,2	0,4	0,1	0,1	0,9	<0,1	0,1	93,6
TOTAL	3,1	0,2	2,4	2,1	0,3	42,9	8,1	37,0	6,4	20,6	3,2	7,5	35,5	26,2	0,4	11,7	3,3	7,3	0,3	1,7	0,6	0,2	0,8	9,5	3,8	0,8	2,0	0,2	0,4	1,5	0,3	0,1	238,6
EGION 3																																	
amaulipas	0,7	0,2	0,1	0,1	0,2	10,2	2,5	2,6	21,9	0,6	7,7	1,9	4,5	19,6	0,1	5,8	2,4	7,3	0,1	0,8	2,1	0,1	0,6	4,9	1,9	0,7	0,7	0,1	0,3	1,6	0,4	0,1	102,8
ra Cruz	0,7	0,2	0,3	0,3	0,1	0,8	0,8	0,6	1,8	7,2	2,0	1,4	0,4	3,7	0,3	3,8	2,5	1,9	1,4	19,9	0,8	0,9	7,9	8,1	6,2	4,4	17,1	3,2	7,6	1,4	1,9	0,1	109,7
TOTAL	1,4	0,4	0,4	0,4	0,3	11,0	3,3	3,2	23,7	7,8	9,7	3,3	4,9	23,3	0,4	9,6	4,9	9,2	1,5	20,7	2,9	1,0	8,5	13,0	8,1	5,1	17,8	3,3	7,9	3,0	2,3	0,2	212,5
GION 4																																	
guascalientes	0,2	-	0,1	-	0,1	0,3	0,2	0,6	0,1	0,1	0,3	0,4	3,3	0,4	0,1	3,2	-	0,9	-	-	-	-	-	0,3	0,1	0,1	-	-	-	0,1	-	-	10,9
acatecas	0,3	-	0,1	0,1	0,2	1,6	1,1	1,3	0,1	0,4	-	1,3	0,4	1,2	-	3,1	0,1	0,4	-	-	-	-	-	1,3	-	0,1	0,5	-	-	0,1	-	-	13,7
n Luis Potosi	-	-	0,1	2,6	0,1	0,5	0,4	1,6	2,6	2,5	0,5	0,9	3,4	0,1	-	1,6	1,0	4,6	-	0,5	2,6	-	2,2	1,7	0,5	0,1	0,1	0,1	0,1	-	-	-	30,3
TOTAL	0,5	-	0,3	2,7	0,4	2,4	1,7	2,3	1,8	3,1	2,8	2,6	7,1	1,7	0,1	7,9	1,1	5,9	-	0,5	2,6	-	2,2	3,3	0,6	0,3	0,6	0,1	0,1	0,2	-	-	54,9
GION 5																																	
lima	0,3	-	-	-	-	0,1	0,5	0,1	-	0,1	0,6	-	0,1	0,1	1,0	8,6	4,9	0,1	0,1	-	0,2	-	-	0,5	0,4	0,3	0,1	-	-	0,2	-	-	18,3
lisco	2,5	-	1,6	2,3	4,6	1,0	1,1	1,2	1,4	1,4	1,1	2,1	11,3	1,3	2,9	2,1	14,0	5,0	0,1	1,3	0,8	0,2	0,8	5,3	1,6	0,2	1,1	0,3	0,2	0,1	0,4	-	69,3
ichoacan	0,2	0,1	-	0,1	0,3	0,1	0,4	0,6	0,4	0,4	1,0	0,1	0,1	0,9	0,2	6,4	0,6	5,0	0,7	1,1	0,3	0,1	0,8	5,4	4,1	3,0	0,9	0,1	-	-	0,1	-	33,5
anajuato	0,3	0,1	-	0,1	-	0,2	0,4	0,3	0,1	2,6	0,7	0,8	0,8	1,8	0,1	8,5	4,2	0,5	0,1	1,0	2,2	-	0,5	4,8	1,2	0,1	0,7	0,1	-	0,3	0,1	-	32,6
TOTAL	3,3	0,2	1,6	2,5	4,9	1,4	2,4	2,2	1,9	4,5	3,4	3,0	12,3	4,1	4,2	25,6	23,7	10,6	1,0	3,4	3,5	0,3	2,1	16,0	7,3	3,6	2,8	0,5	0,2	0,6	0,6	-	153,7
ION 6																																	
relos	0,5	-	-	0,1	0,1	0,2	0,2	0,2	-	-	0,8	0,1	0,1	0,3	0,1	0,6	2,4	1,0	0,3	2,6	0,1	-	1,0	2,5	6,5	14,8	1,6	0,4	0,1	-	-	-	36,1
bla	0,1	0,1	0,1	0,3	0,1	0,7	0,1	0,1	0,2	0,6	9,4	0,6	0,3	0,8	0,1	0,6	1,6	1,0	0,9	0,7	0,4	5,7	1,6	4,6	2,6	1,7	5,0	0,1	-	0,3	0,3	-	60,2
retaro	0,1	-	-	-	-	-	0,1	0,2	0,1	0,1	0,2	0,1	0,3	0,5	0,2	0,8	0,4	4,1	0,1	0,1	0,2	0,1	0,6	1,5	0,7	0,2	-	0,1	-	0,1	-	0,1	11,0
xcala	-	-	-	0,1	-	-	-	0,1	0,2	-	0,3	0,1	-	0,1	-	0,2	-	0,1	-	2,7	-	0,1	0,8	1,3	1,0	0,1	0,1	-	0,1	-	0,1	-	7,6
algo	-	-	0,1	0,1	0,1	0,1	-	1,3	0,1	0,1	2,5	0,1	0,3	0,4	0,1	0,2	1,1	1,2	0,1	2,1	0,5	0,6	0,6	4,8	2,7	0,4	0,2	-	0,1	0,1	-	-	20,0
TOTAL	0,7	0,1	0,2	0,6	0,3	1,0	0,4	1,9	0,6	0,8	13,2	1,0	1,0	2,1	0,5	2,4	5,5	7,4	0,9	8,2	1,2	6,5	4,7	14,7	13,5	16,7	6,9	0,6	0,3	0,5	0,4	0,1	114,9
ION 7																																	
trict federal	3,9	1,9	2,6	3,9	2,0	9,1	5,8	7,1	6,1	8,9	38,9	9,5	8,3	11,1	3,4	9,9	59,7	60,6	7,4	47,4	12,9	13,5	43,1	9,8	86,0	17,0	34,7	0,2	3,6	2,0	7,9	0,3	566,3
ico	0,4	0,1	0,8	0,8	0,4	0,6	0,5	2,3	0,9	0,6	2,9	0,8	1,3	2,5	0,7	5,4	9,3	15,6	2,4	6,3	4,2	3,5	9,5	75,8	1,7	1,8	2,6	0,3	0,4	0,1	0,7	0,1	155,3
TOTAL	4,3	2,0	3,4	4,7	2,4	9,7	6,3	9,4	7,0	9,5	41,8	10,3	9,6	13,6	4,1	35,3	69,0	76,2	9,8	53,7	17,1	17,0	52,6	85,6	87,7	18,8	37,3	0,5	4,0	2,1	8,6	0,4	721,6
ION 8																																	
rrero	-	-	0,1	0,1	-	0,1	0,1	0,1	0,1	0,1	1,1	0,3	0,1	0,1	0,2	0,1	2,3	0,3	1,1	0,4	-	-	0,3	2,0	0,6	0,1	2,3	0,3	-	-	0,1	0,4	12,8
co	0,5	-	0,1	0,1	0,1	0,2	0,3	0,1	-	0,4	5,9	0,1	0,1	-	0,2	0,5	0,6	0,3	0,4	1,2	0,1	-	0,2	0,9	1,9	2,2	0,1	1,8	0,3	0,8	0,4	0,1	19,9
pas	0,1	0,1	0,1	-	0,1	0,2	0,1	0,3	0,4	0,1	1,9	-	0,6	0,4	-	0,1	0,4	0,1	0,3	0,5	0,1	0,1	0,1	1,4	1,2	0,1	3,9	4,9	7,2	0,1	-	-	24,9
sco	0,1	-	-	0,1	0,1	0,1	-	-	0,1	0,1	2,8	0,1	0,3	-	-	0,5	0,1	0,1	-	0,1	-	-	-	0,1	0,1	0,1	0,8	4,8	-	1,1	0,8	0,1	12,5
che	-	-	-	-	-	-	-	-	-	-	0,4	-	-	-	-	-	-	-	-	-	-	-	-	0,1	0,2	-	-	-	4,2	-	4,1	0,1	9,1
tán	-	-	-	-	-	0,1	-	-	0,1	-	-	0,1	0,1	-	-	0,1	-	-	-	-	0,1	-	-	0,4	0,3	-	-	-	0,1	0,9	-	0,5	2,8
tana Roo	-	-	-	-	-	-	-	-	-	-	0,1	0,2	-	-	-	-	-	-	-	-	-	-	-	1,4	0,1	-	-	-	0,1	0,4	6,7	-	9,0
TOTAL	0,7	0,1	0,3	0,3	0,3	0,7	0,5	0,5	0,7	0,7	12,2	0,8	1,2	0,5	0,4	1,3	3,4	0,8	1,8	2,2	0,3	0,1	0,6	6,3	4,4	2,5	7,1	11,8	11,9	3,3	12,1	1,2	91,0
erall tot..	24,9	7,7	27,3	49,0	20,4	73,9	83,2	68,5	43,7	49,0	87,7	30,4	81,3	73,5	12,3	142,2	127,4	129,7	15,6	92,1	20,8	25,8	72,9	158,1	129,1	48,6	77,8	25,1	25,1	12,2	24,7	2,0	1022,0

- figure less than 0.1

At this point, it should be emphasized that migration which takes place within the base unit chosen for the analysis is not considered as migration. Thus, in an analysis of inter-regional migration, no account is taken of migration occurring within any given region. The only migration counted is that occurring between one region and another. Moreover, as migration is observed by comparing the place of residence on two given dates, only the origin (the place of residence at the beginning of the period) and the destination (the place of residence at the end of the period) are considered. Intermediary migration which may have occurred between these two dates is not taken into account. This may give rise to problems when migration is studied for a period between two censuses, which may be a period of ten years.

A. Data collection for analysis of migration

Certain countries (such as Belgium, Switzerland, the Netherlands, Denmark, Sweden, Federal Republic of Germany) have population registers which are kept up to date and managed by the local authorities. These files allow the continuous registration of births, deaths and the changes of residence for which notification is obligatory. Such files enable migratory phenomena to be studied in a very convenient and detailed manner.

In countries, where no such registers exist, the main source of data is from the census information. From the census, three main sorts of analysis can be made :

The first which is the simplest consists merely in comparing the place of birth and the place of residence. We can thus obtain the proportion of inhabitants in each territorial unit who were born there and the proportion of those who were born elsewhere. This is what was done in Table 1, which is given above. This simple estimation gives us an idea as to the extent of migration. It is, however, not sufficiently detailed for making future projections of migration.

The second method which supposes that data are available from at least two successive censuses, consists in projecting from the population count from the previous census and the data on births and deaths the theoretical population which would exist if there had been no migration. The number of migrants can be deducted by comparing this hypothetical population with the actual population counted at the next census. This method has two major disadvantages. The first is that, being based on a difference, errors in estimating births and deaths, as well erroneous age declarations and mistakes in the population count are accumulated. The second disadvantage is that it gives only a migratory balance, in other words the difference between immigrants and emigrants, and not the number in each category. This naturally reduces the significance of the results.

The third method requires a specific question on migration to be included in the census questionnaire. This question usually refers to the place of residence at a date t. By comparing the place of residence on date t and the place of residence at the time of the census and by making a breakdown by sex and specific age, an exact presentation of population movements can be made (natural growth and migration), as is shown in the following table.

B. Indicators of migration

Various indicators may be constructed in order to analyse migration. The main ones are :

1. Emigration rate

This rate relates to the total number of emigrants leaving a given territorial unit to the total population of this same territorial unit. This rate may be calculated separately by sex and by specific age.

2. Proportion of immigrants, arriving during a given period, in the total population

It is interesting to relate the number of immigrants to the total population of the territorial unit where they have settled. In this case, we cannot correctly speak of rates since, at the outset, the immigrants are not included in the population of the territorial

Table 4. Demographic stuation 1968-74 in the Strasbourg area (Males)

Age in 1974	0-9	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60-69	70 et +	TOTAL
Original population in 1968	18 469	22 310	21 365	21 450	21 784	36 628	33 178	22 153	25 044	21 750	244 131
+ Births	27 835										27 835
- Deaths	735	73	82	123	168	524	979	1 673	4 428	9 596	18 381
+ Internal immigration	4 642	1 652	2 232	6 433	4 879	3 643	2 382	944	537	294	27 656
- Internal emigration	3 125	1 409	1 045	1 713	3 094	3 687	2 052	890	760	360	18 134
+ Balance of foreign migration	1 107	330	440	1 525	1 401	1 300	605	262	39	11	9 502
Final population in 1974	48 193	22 810	22 909	27 572	24 802	37 361	33 133	20 796	20 432	12 098	270 105

unit where they have settled. For this reason we prefer to employ the term "proportion". These proportions of immigrants may be calculated separately by sex and by age.

3. Proportion of net immigrants in the total population

The previous indicators refer to the total number of departures and arrivals in the population. The effect on population growth is limited to the difference between arrivals and departures, in other words to the balance of migration. We can thus calculate a proportion of net immigration from the balance of migration. This indicator can also be calculated separately by sex and age.

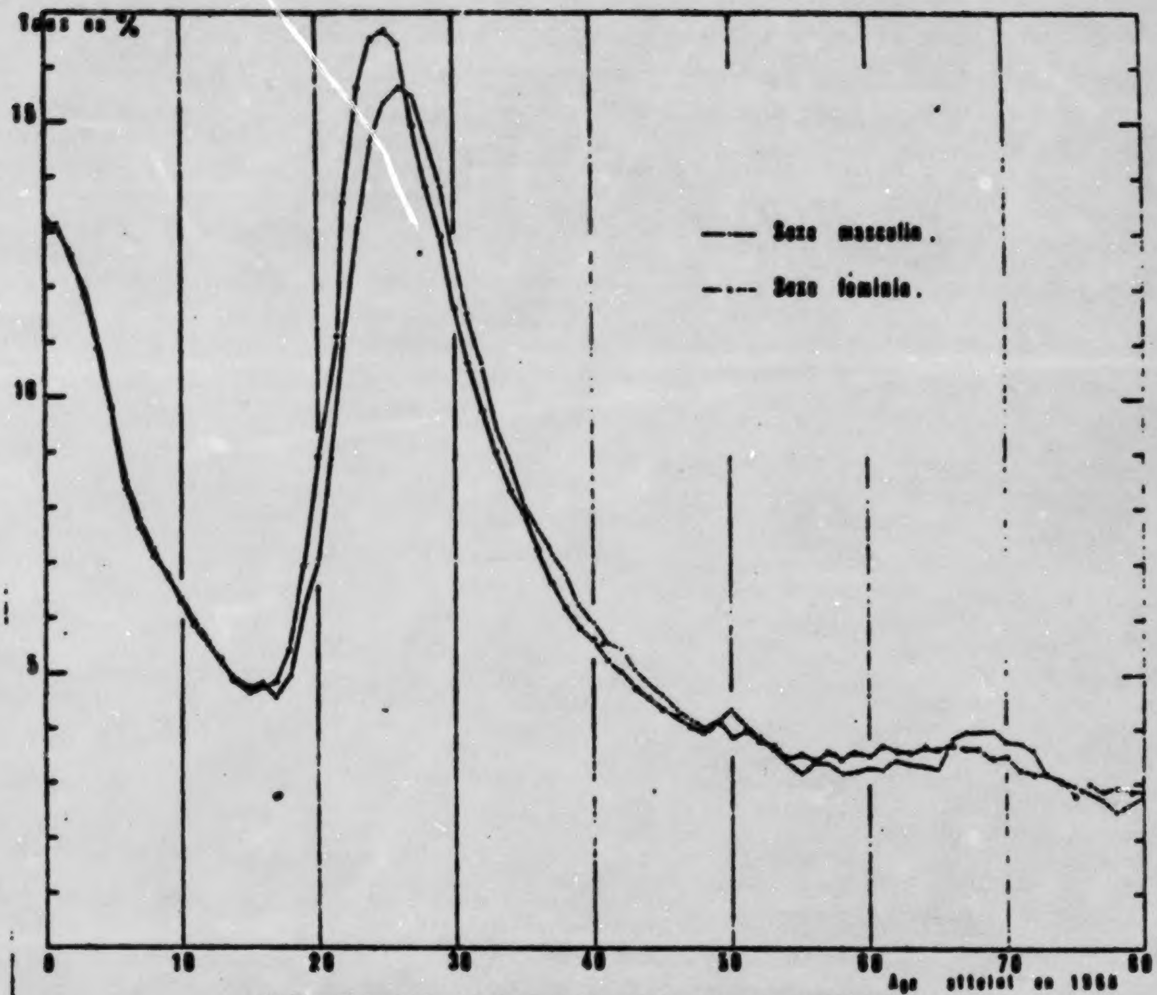
4. Inter-regional migration rate

So far we have been interested in one region and we have attempted to calculate the number of departures and arrivals. in this region. We may, however, be interested by the intensity of migration for a whole set of regions. We thus need to calculate the inter-regional migration rate, which relates the total number of persons who have moved from one region to another to the total population in all the regions. This rate is generally calculated by sex and by age. An example of this is given in the following graphic which represents the inter-regional migration rates according to age in France.

III. INCLUSION OF MIGRATION IN PROJECTIONS OF THE SCHOOL-AGE POPULATION

As the above graph indicates, migration varies greatly according to age. This stems from the fact that the decision to emigrate is a function of age and also because migration occurs by family groups. This is why migration is greater for the 20-35 and the 0-10 age groups.

Since this variation is a function of age, it is necessary when projecting the school age population to use, wherever possible, the balance of migration by sex and by age.



(*) Numérateur : Personnes ayant changé de région entre 1962 et 1968.
Dénominateur : Ensemble des personnes recensées en 1968, sauf immigrants en provenance de l'extérieur.
Sources : Recensement général de la population de 1968. Tableau DIV 570 Q.

Source : Centre national de la Recherche scientifique, Migrations intérieures méthodes d'observation et d'analyse, Paris, 1975, p. 40

Graph 1. Inter-regional migration rate by age and by sex.

Another problem which also arises is the fact that the territorial units used in the preparation of the school map are often very small and moreover do not coincide with the units employed in migration analysis. In general, therefore, it is necessary to go back to the raw data from the most recent census and from there proceed with the estimation of migration.

However, in projecting the school-age population, what we are really interested in is not the features of past migration, but its possible evolution in the future. In order to have an idea of future trends, it is interesting not only to analyse past trends but also to examine the possible effect which the following factors may have on migration :

- Industrial and agricultural projects which may be implemented in the region ;
- Expansion of communication networks ;
- Repercussions resulting from certain characteristics specific to the region ; regrouping of farms, possible changes in economic activity, etc.

In the case of migration occurring within the catchment area, certain trends may be detected, by examining new admissions in schools over recent years. In some schools, a tendency for new admissions to fall off may be observed, whereas in other cases the reverse may be true.

Because of the often fragmentary type of data available on migration, due to the fact that migratory phenomena are often peculiar to each region, and because of the varied effect which development projects may have on future migration, it is not possible to give a general method applicable in all cases.
It is consequently necessary to collect all available information on migration and then find a suitable method using all these data.

The projection of the school-age population will then be done in two separate stages :

- Projection of the population for the horizon year using the data from the previous census, birth forecasts and survival rates

- Projection of the balance of migration by age for the horizon year

These two projections together will give the school-age population for the horizon year.

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Appendix I : Extract from : G. Carron and Ta Ngoc C.,
Reduction of regional disparities and educational
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Complications introduced by migration

As soon as population migrations reach certain proportions they are liable to introduce serious distortions into comparisons of educational situations in the different territorial units, and to mislead us as to the real extent of disparities. Here we must take into account not only global migratory movements but also - and especially - those that are educational in origin. These can be quite considerable: migration from rural to urban areas in order to attend secondary school, or migration from one province to another or to the capital in order to attend higher education.

One way of identifying these migratory movements is to compare parents' place of residence with their children's place of study (1). This is what has been done in the following table, which looks at new admissions to the universities in Bangkok and to provincial universities.

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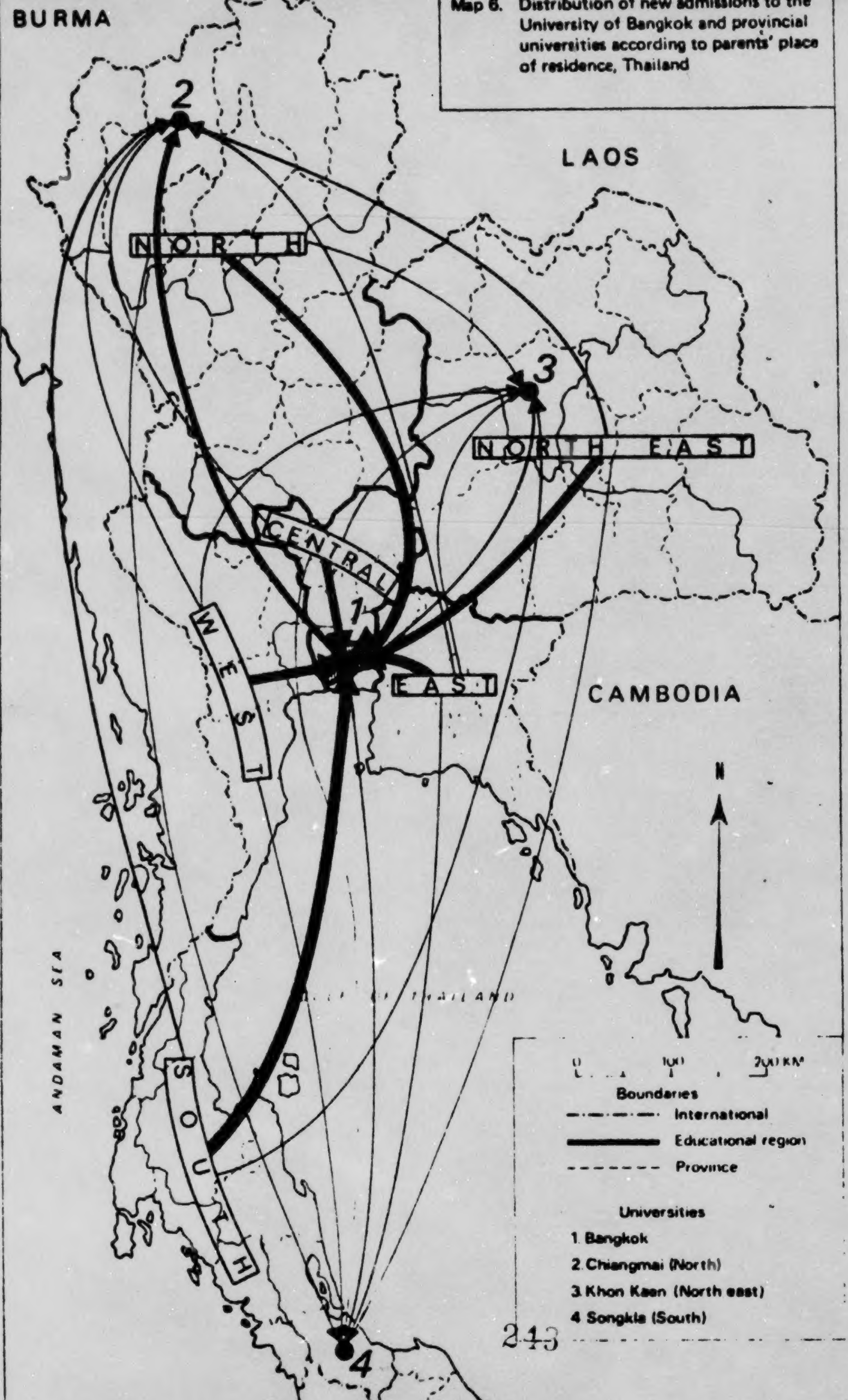
(1) This is an indirect way of identifying migratory movements. It may lead to an under-estimation of migration, when the parents themselves emigrate for the sake of their children's education. Inversely, it may also be the case that some young people, who emigrate in the first place in the search of employment, then take advantage of the proximity of a university to their new place of residence to pursue their studies.

Table 1. Distribution of students in the universities of Bangkok and in the provincial universities according to the place of residence of their parents

Place of residence of parents	Bangkok universities		Provincial universities						TOTAL	
			Chiengmai (North)		Khon Kaen (North-east)		Songkla (South)			
	Number	%	Number	%	Number	%	Number	%	Number	%
Bangkok	4 126	56,4	488	31,0	92	18,1	72	17,7	4 778	48,8
Centre	413	5,6	94	6,0	46	9,1	17	4,2	570	5,8
East	576	7,9	113	7,2	38	7,6	23	5,7	750	7,7
West	511	7,0	108	6,9	58	11,4	24	6,0	701	7,2
North	527	7,2	446	28,4	55	10,8	35	8,7	1 063	10,8
North-east	407	5,6	126	8,0	169	33,4	12	2,5	714	7,4
South	758	10,3	196	12,4	48	9,6	223	55,0	1 224	12,5
TOTAL	7 318	100,0	1 570	100,0	506	100,0	406	100,0	9 800	100,0

Source : K. Sudaprasert, V. Tunsiri and C. Ta Ngoc, op.cit., p. 112


Map 6. Distribution of new admissions to the University of Bangkok and provincial universities according to parents' place of residence, Thailand

BURMA
LAOS
CAMBODIA
NORTH
NORTH EAST
CENTRAL
WEST
EAST
SOUTH
ANDAMAN SEA
GULF OF THAILAND
1
2
3
4
N
0
100
200 KM
Boundaries
International
Educational region
Province
Universities
1 Bangkok
2 Chiangmai (North)
3 Khon Kaen (North east)
4 Songkla (South)

Most of Thailand's universities are in Bangkok, and at present there are only three in the provinces: Chiangmai in the North, Khon Kaen in the North-East, and Songkla in the South. Hardly surprisingly, therefore, there is a heavy migration of students from the provinces in the direction of Bangkok. 43.6 per cent of students newly-admitted to the universities of Bangkok have parents living in other regions. It is worth pointing out, though, that equally considerable numbers of students leave Bangkok to study in the provinces. At the University of Chiangmai, for instance, 31 per cent of new admissions came in fact from Bangkok, a higher proportion than for students from the North admitted to this same university. In other words, migrations of students follow complex patterns: from all the provinces to Bangkok and to the provincial universities, and also from Bangkok to the provincial universities (see Table 1 and Map 6).

Needlesss to say, educational migration occurs not only in higher education. It occurs at other levels too. Taking once again as our base the records of freshman students at Thai universities, we have been able to compile the following data concerning the place where these students attended the first and second cycles of their secondary education.

Table 2. Distribution of successful candidates admitted to university according to the region where they received their lower and upper secondary education

Lower secondary Upper secondary	Metropolitan	Central	North	North-east	South	East	West	Abroad	Unknown	Total
Metropolitan	5 668	525	295	276	540	397	329	-	211	7 941
Central	118	236	17	14	37	15	18	-	18	473
North	8	3	638	2	6	4	-	-	17	678
North-east	3	1	-	284	1	1	1	-	7	298
South	3	-	3	2	524	3	1	-	29	565
East	9	4	3	2	5	272	3	-	11	309
West	6	7	4	1	7	3	286	-	12	326
Abroad	-	-	-	-	2	-	-	1	-	3
Unknown	-	-	-	-	-	-	-	-	-	-
Total	5 815	476	960	581	1 122	695	638	1	305	10 593

Source : K. Sudaprasert, V. Tunsiri and C. Ta Ngoc, op.cit. p.49

Figures underlined refer to students who attended both cycles in the same region. The other figures show the relative scale of migratory movements. It is interesting, in this respect, to compare Bangkok with the North-East region. Only a negligible proportion (2.5 per cent)(1) of students who attended lower secondary school in Bangkok left that city for upper secondary. . On the other hand, a substantial proportion (28.6 per cent) of students who attended lower secondary school in other regions came to Bangkok to complete their secondary education. The situation is exactly the reverse in the North-East where the proportion of students from this region who were obliged to leave the region to pursue their upper secondary education came to 51.1 per cent (47.5 per cent moving to Bangkok to do so). On the other hand, only 4.6 per cent moved to the North-East for this purpose.

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(1) These are most probably children who emigrated with their parents, for reasons other than educational.

Owing to the extent of these migrations there is a risk of serious error creeping into calculations of access rates. In as much, for example, as secondary schools are generally located in the towns, there is a risk of overestimating the rate of access to secondary education in the towns by relating total enrolments to the school-age population of the towns. To obtain more exact rates it would be preferable to examine the distribution of enrolments not in terms of the location of schools but rather of parents' place of residence. Unfortunately, while this kind of information is often available for higher education it is rarely so for the other levels.

LECTURE No. X

PROJECTION OF ENROLMENTS

by

G. Carron

The notion of demand of education is a relative one and in the projection of enrolments it is also necessary to take into account the educational policy of the country concerned and the schooling targets which it has set. In some instances, the detailed planning of the location of schools may lead to the conclusion that some of these targets cannot be achieved because of the features of the region for which the school map is being prepared(1).

The repercussions of the educational policy or of schooling targets on the projection of enrolment may be seen either on the rate of new admissions (policy of access to education), on flow rates in the educational system (policy concerning the improved efficiency of the system) or on transition rates from one level to another (policy of extending compulsory education or policy of restricting admissions to secondary education).

The trend of enrolments in the future will thus depend not only on population growth, but also on the assumption made about the change in the above-mentioned rates.

I. Projection of new admissions

New admissions depend both on the trend of the number of children reaching admission age and on the target admission rate. Schooling objectives are, however, set for the country as a whole. Considerable differences may exist between the various regions and within a region between urban and rural zones. There may also be quite large differences in schooling rates for boys and for girls. These global objectives have thus to be explicited and converted into specific objectives for the region first and then for each of the homogeneous zones defined for school-map purposes. Various conversion methods may be considered. Most of them take into account the possible trends towards reducing disparities in the country.(2)

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(1) We shall not go into detail on this subject which has been dealt with in Jacques Hallak's : "Implementing educational policies : The rôle and methodology of the school map".

(2) For more details, see J. Hallak, op.cit., Chapter 9,

In many developing countries, the problem is complicated by late entries, which may be very sizable. Due to late entries, the apparent admission rate may be temporarily greater than 100 %. By analysing age-specific entries in past years and by extrapolating the trends, we can see how and at what rate these late entries may be absorbed in the future.

II. Projection of enrolments

In order to project enrolments for a given horizon year, on the basis of present enrolments and new admissions expected in the future, we can make projections using average promotion, repeating and drop-out rates and transition rates from one level to another.

These projections are relatively long since the entire enrolments for all the years up to the horizon year have to be projected.

The projections can be simplified by using retention rates which allow us to pass directly from new entries in previous years to the enrolments for a given year. Thus, if the duration of primary education is six years and the maximum number of repetitions is 2, primary school enrolments for a given year are function of new entries over the previous 8 years.

Retention rates can be defined as being the proportion of pupils admitted in a given year who are still in the educational system one year later, two years later, ... n years later.

Retention rates can be computed directly provided detailed statistics are available, giving the various grades the distribution of enrolment according to the number of repetitions. From the grade and the number of repetitions, we are able to identify the pupils by the year in which they were admitted to the system, and then we can estimate retention rates for each of the cohorts which have been successively admitted to the system.

If the data in Table 1 concern year t, it is clear that E_0^6, E_1^5, E_2^4 and E_3^3 were all admitted in the year t-5 and that the retention rate after 5 years of schooling is equal to

$$b^5 = \frac{E_0^6 + E_1^5 + E_2^4 + E_3^3}{A_{t-5}}$$

Table 1. Distribution of enrolment by grade and by the number of repetitions, 1972

Total number of repetitions	Grade					
	I	II	III	IV	V	VI
0	E_0^1	E_0^2	E_0^3	E_0^4	E_0^5	$\underline{E_0^6}$
1	E_1^1	E_1^2	E_1^3	E_1^4	$\underline{E_1^5}$	E_1^6
2	E_2^1	E_2^2	E_2^3	$\underline{E_2^4}$	E_2^5	E_2^6
3	E_3^1	E_3^2	$\underline{E_3^3}$	E_3^4	$\underline{E_3^5}$	E_3^6

When data on the distribution of enrolment by grade and by number of repetitions are not available, it is possible to reconstitute a theoretical cohort from the promotion, repetition and drop-out rates. It is important to note that, in this case, average rates are used for the various grades instead of real rates referring to a specific cohort. As a result, the retention rates computed in this way do not reflect exactly the real situation. In the projection of enrolments in the future, the rates used are not rates observed in the past, but perspective rates. The assumptions made about the level of these perspective rates depend on policy concerning repetition and drop-outs, and the efficiency of the measures taken to implement this policy.

Thus in projecting enrolment, the following steps should be taken :

- calculation of admissions (in the light of the goals adopted)
- estimation of future retention rates
- application of retention rates to the admission figures
- calculation of total enrolment

$$E_t = A_t + b_1 A_{t-1} + b_2 A_{t-2} + \dots b_n A_{t-n}$$

EXERCISE No.8

PROJECTION OF ENROLMENT

I. PROJECTION OF ENROLMENT IN PRIMARY EDUCATION

When projecting enrolment one has to :

- project school-age population,
- make some assumptions concerning the evolution of the rate admission,
- project admission,
- define the rate of promotion, repetition and drop-out to be used in the future,
- compute future enrolment.

1. Projection of enrolment in Kidodi zone: assumptions

(a) The seven year old population will increase at the same annual rate as the total population of the area between 1967 and 1978.

(b) Repetition is negligeable. We will thus project direct enrolment ratio in Standard I and apparent promotion

(c) The apparent promotion ratios observed for 1980/81 will remain the same for the whole period.

Complete the following tables and comment.

Table 1 : Projection of admissions in primary schools (KIDODI)

Year	Number of seven year olds	Enrolment ratio in Standard I	Enrolment in Standard I
1981	932	85.8	
1982	965	88.0	
1983	995	90.0	
1984	1 030	95.0	
1985	1 065	100.0	
1986	1 100	102.0	
1987	1 140	102.0	

Table 2 : Apparent promotion ratio (KIDODI)

I-II	II-III	III-IV	IV-V	V-VI	VI-VII
92.0	98.5	94.0	95.5	99.0	97.5

Table 3 : Projection of enrolment by Standards (KIDODI)

Year	Std. I	Std. II	Std. III	Std. IV	Std. V	Std. VI	Std. VII
1981	800	783	780	1 322	709	553	411
1982							
1983							
1984							
1985							
1986							
1987							

Table 4 : Total enrolment by zone

	1981	1987	Rate of increase 1981/1987
North	19,280	21,962	13.9 %
North-East	4,464	5,448	22.1 %
Kimomba	6,238	7,624	22.2 %
Kidete	3,099	3,659	18.1 %
Kilosa	3,746	4,865	29.8 %
Masanze	5,893	7,835	32.9 %
Mikumi	3,306	4,327	30.9 %
Kidodi	5,358		
Total District	51 384		

II. PROJECTION OF ENROLMENT SECONDARY EDUCATION

	Form I-II	Form II-III	Form III-IV
Promotion Ratio	100 %	95 %	95 %

Table 5 : Projection of secondary enrolment (whole district) - alternative 1

Year	Std. VII enrolment	Transition ratio	Form I	Form II	Form III	Form IV	Total
1981	3,909	2.2%	102				
1982	5,716	3.5 %	84				
1983	7,019	4.3 %					
1984	9,700	5.2 %					
1985	6,612	10.6 %					
1986	5,460	12.8 %					
1987	6,000						

Note : Figures should be rounded off to the nearest 10.

Table 6 : Projection of secondary enrolment (whole district) - alternative 2

Year	Std. VII enrolment	Transition ratio	Form I	Form II	Form III	Form IV	Total
1981	3,909	2.2 %	102				
1982	5,716	1.8 %	84				
1983	7,019	2.1 %	200				
1984	9,700	2.1 %					
1985	6,612	3.8 %					
1986	5,460	5.5 %					
1987	6,000						

SOLUTION TO EXERCISE No.8

PROJECTION OF ENROLMENT

I. PROJECTION OF ENROLMENT IN PRIMARY EDUCATION

Table 1 : Projection of admissions in primary schools (KIDODI)

Year	Number of seven year olds	Enrolment ratio in Standard I	Enrolment in Standard I
1981	932	85.8	800
1982	965	88.0	850
1983	995	90.0	896
1984	1 030	95.0	978
1985	1 065	100.0	1 065
1986	1 100	102.0	1 122
1987	1 140	102.0	1 162

Table 2 : Projection of enrolment by Standards (KIDODI)

Year	Std. Std. I	Std. II	Std. III	Std. IV	Std. V	Std. VI	Std. VII
1981	800	783	780	1 322	709	553	411
1982	850	736	771	733	1 262	702	539
1983	896	782	725	725	700	1 249	684
1984	978	824	770	681	692	693	1 218
1985	1 065	900	812	724	650	685	675
1986	1 122	980	887	763	691	644	668
1987	1 162	1 032	965	834	729	684	628

Table 3 : Total enrolment by zone

	1981	1987	Rate of increase 1981/1987
North	19,280	21,962	13.9 %
North-East	4,464	5,448	22.1 %
Kimamba	6,238	7,624	22.2 %
Kidete	3,099	3,659	18.1 %
Kilosa	3,746	4,865	29.8 %
Masanze	5,893	7,835	32.9 %
Mikumi	3,306	4,327	30.9 %
Kidodi	5,358	6,034	12.6 %
Total District	51 384	61,754	20.2 %

II. PROJECTION OF ENROLMENT SECONDARY EDUCATION

	Form I-II	Form II-III	Form III-IV
Promotion Ratio	100 %	95 %	95 %

Table 4 : Projection of secondary enrolment (whole district) - alternative 1

Year	Std. VII enrolment	Transition ratio	Form I	Form II	Form III	Form IV	Total
1981	3,909	2.2%	102				
1982	5,716	3.5 %	84				
1983	7,019	4.3 %	200	84			
1984	9,700	5.2 %	300	200			
1985	6,612	10.6 %	500	300	190		
1986	5,460	12.8 %	700	500	285	180	
1987	6,000		700	700	475	270	2 145

Table 5 : Projection of secondary enrolment (whole district) - alternative 2

Year		Transition ratio	Form I	Form II	Form III	Form IV	Total
1981	3,909	2.2 %	102				
1982	5,716	1.8 %	84				
1983	7,019	2.1 %	100				
1984	9,700	2.1 %	150	100			
1985	6,612	3.8 %	200	150	95		
1986	5,460	5.5 %	250	200	142	90	
1987	6,000		300	250	190	135	875

Table 6: Possible enrolment in secondary education by zone (Form I)

	Alternative 1 (high) Form I	Alternative 2 (low) Form I
North	226	97
North/East	50	21
Kimamba	93	40
Kidete	52	22
Kilosa	58	25
Masanze	84	36
Mikumi	52	22
Kidodi	85	37
TOTAL	700	300

LECTURE No XI

SCHOOL SIZES, NORMS AND CATCHMENT AREAS

by

Ta Nogc Châu & H. de Bosch Kemper

A. THE SCHOOLSIZES IN TERMS OF ENROLMENT

While the creation of a new school may be the result of a well weighted décision, the growing of existing schools goes in most countries rather un-controled. (Tanzania forms an exeptional case). However, each increasement of enrolment, in particular of enrolment capacity amounts to a new creation.

As for other institutions and production centres, schoolsizes can be identified which favour efficient and economical functioning. We may call such a schoolsize an optimum standard.

Optimum standard schoolsizes can be identified for each type of education. They vary in relation to the educational programme offered and the teaching methods used.

To respect optimum standard schoolsizes is not only important in regions with an average population dencity, but also in townships. Here we may prefer small sized neighbourhood schools rather than large schools away from pupils homes which create important circulation problems at morning and evening peak hours.
Also socially smaller schools provide better conditions for the contact between the education facility and the environment it serves (non-formal education activities, social meetings, contacts between parents of pupils and teachers, etc).

(a) Optimum standard schoolsizes for primary education

For this level optimum standard sizes are generally dictated by the number of years of education, and the number of pupils in each class (one teacher is provided for each class of pupils).

For Tanzania optimum standard sizes would be:

7 x 45 = 315 pupils (one class of 45 pupils at each year of education).

2 x 7 x 45 = 630 pupils (two classes of 45 pupils at each year of education).

The above sizes correspond to design capacity. In reality schools facilities may be slightly over-or under-utilized.

(b) Optimum standard schoolsizes for secondary education

At this level of education optimum standard sizes are generally dictated by the number of specialized subjects taught at the school, by the standard number of teaching hours per teacher, by the number of pupils following each subject, and the average number of periods the subject is tought per week per class

(teachers are provided on subject bases)

Example: When a specialized teacher should teach 24 periods per week and the subject is tought on the average 3 periods per week per class, then the school should have 24:3 = 8 pupils classes. On basis of this criteria the optimum schoolsize is:

8 x 40 = 320 pupils (this can be a 2 stream secondary school over 4 years with 40 pupils per class).

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When subjects are tought less than an everage of 3 periods per class, teachers in this school will have to teach more than one subject to be fully employed.

Again the schoolsize above indicates design capacity,

(c) Smaller schoolsizes

In areas with low-population dencity we may, in order to reach to people, have to create smaller than optimal standard sized facilities as the catchment area where pupils should come from does not provide enough clients to justfy the creation of an optimal standard sized school.

We may then create half optimal standard sized schools.

This would imply that for primary education two pupils classes would share one room and teacher. For Tanzania this half optimum standard size would be:

$\frac{1}{2}$ x 315 pupils = 158 pupils.
As on 7 years only 6 can be grouped and one remains, this would mean the creation of 3 double and 1 single class with 4 teachers.

Smaller schools on secondary education level would increase the use of specialised teachers which can cover more than one subject.

(d) Larger schoolsizes

For mainly economical and management reasons one can argue the advantage of large schoolsizes in particular in urban environment. These schoolsizes should then remain in as far as possible a multiple of the optimal standard size.

For primary education in Tanzania

2 x 7 x 45 = 630 pupils or 3 x 7 x 45 = 945 pupils.

For secondary schools in our example these sizes could be:

4 x 4 x 40 = 640 (a four stream 4 yearsschool).

6 x 4 x 40 = 960 (a six stream 4 years school

As stated earlier schools tend to grow larger, often the large schools are not created; schools just keep growing. Planned action here can considerably improve the efficiency of the education system.

For mainly social reasons schools should not grow into very large institutions.

B. THE SCHOOLSIZE IN TERMS OF GROUNDS AND BUILDINGS

The needs for grounds and buildings can be determined by:

- asking the users of the facility what they need
- applying an established norm.

While in the case of highly specialized university facilities an administration has to rely on the judgement of users (specialist professors) the educational facilities financed through public funds, for primary and secondary education, are generally provided following established norm.
These norms can be:

- borrowed from a foreign country or
- established on a national or regional base.

While the first method has been applied to some extend in the past, and is at present still applied for the acquisition of certain facilities, countries, through development efforts in the spirit of self reliance, are presently generally succeeding in establishing and applying their own national norms for development of educational facilities.

A national norm should be based on:

- the educational activity and its physical needs.
- the social-economical-and physical environment where it is applied.

(a) Norms for school grounds

A schoolground should be sufficiently large to provide space for:

- constructed facilities (education, administration, services, boarding, housing)
- the provision of open air teaching areas including space for agriculture.
- circulation areas and planting
- the provision of leisure areas and fields for games and sports.

A 7 year rural primary school could be accomodated conveniently on 1 ha of usable ground (about 30 m^2 per pupil).

For a secondary school the area could be larger where this school has to accommodate agricultural or industrial activities. (30 to 50 m^2 per pupil).

For boarding schools additional grounds have to be added (generally not more than 50 m^2 per boarder) and also for teachers housing grounds have to be reserved (generally not more than 400 m^2 per house).

Large un controlable sites should be avoided, but space for eventual expansion should be reserved.

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Remember 1 ha = 10000 m^2, about the size of an official football field.

Equaly important to the size of the ground is its location. In this respect the following criteria should be analysed.

- functional relation to other facilities and the users
- availability of water, electricity and other services
- accessibility on foot and by vehicle and ralation to trafic situations
- profile, drainage situation, existing vegetation and quality of soil
- acceptability according to local customs.

For some townships and even rural areas, the public administration has already indicated and reserved grounds for the development of education facilities (town or country plans).

(b) Norms for buildings

At the primary education level building norms generally, include:

- one classroom per class of pupils
- one sanitation facility per class of pupils (w.c. or latrine)
- administration/teacher common room
- storage space
- some education systems also require provision of workshops.

At primary education level the utilization of space is generally rather simple: one room for every class of pupils. In secondary schools with specialized laboratories etc, the need for rooms is related to the way in which the school is organised. This can be on bases of one classroom for each class of pupils + specialised rooms (traditional system) or on bases of specialised classrooms only (rotation system). In the last case fewer rooms are needed, however a more carefull organization at the timetable is required.

The various buildings at a secondary school include:

- teaching rooms (ordinary classrooms, specialised rooms, laboratories workshops)
- sanitation facilities and cloakrooms
- administration space, library, teacher common room
- storage space.

In most cases only boarding schools are provided with a facility for buildings-and furniture-maintanance. This might be a point of concern, where we want to maintain the value of existing investments.

In terms of constructed surface, norms are based on space requirements for the execution of a certain activities or tasks. Surfaces allocated my vary from: 1 m^2 per pupil-place in a primary school classrooms to 10 - 15 in per pupil-place in industrial workshops.

In addition to area norms, norms can be prepared to:

- insure building safety and comfort
- evaluate furniture and equipment needs
- make cost estimates etc.

Remember:

A norm should reflect felt needs and be based on development possibilities. A norm is a planning tool, not a weapon (it should be used with flexability).

C. CATCHMENT AREAS

The catchment area may be defined as the geographical area which a school serves. Actually, it is a definition that can be looked on in two different ways, namely:

(i) descriptively, (taking note of the situation as it exists), this entails pin-pointing the place where each pupil attending a given school lives and defining the smallest area which includes all the pupils' homes. If this is done, the catchment area of some schools could overlap;

(ii) from the point of view of regulation and law, this entails all children living inside a certain well-defined area having to attend the school(s) inside the area.

It is obvious that the size of a catchment area can vary enormously from level to level. The catchment area of a university may well coincide with the whole of the country. That of the nursery school "round-the-corner", on the other hand, will probably be very small.

In theory, it may be said that the size of a catchment area will depend on three variables, namely :

(i) maximum distance from home to school,

(ii) population density,

(iii) school size, whether minimum, maximum or standard.

In areas of low population density, strict observance of the maximum distance from home to school may lead to enrolment numbers being lower than those required for minimum size.

Theoretically again, if the catchment area is represented by a circle with radius equal to the maximum distance from home to school, the following formula gives the number of pupils for enrolment :

$$E = 3.14\, r^2 d,$$

where

d = density of school age population and

r = maximum distance from home to school.

If however one uses circles to represent catchment areas it is not possible properly to cover the whole of the area in question. It is therefore more satisfactory to use a honeycomb pattern with regular hexagons. The previous formula now takes the following shape :

$$E = 2.6\, r^2 d$$

These of course are very theoretical formulas only to be used for purposes of a first approximation in connection with an investigation at national level for instance. They are in fact based on simplifying assumptio taking for granted in particular :

(i) homogenous population distribution,

(ii) easy access from anywhere in the catchment area, and

(iii) complete participation by all children of school age.

In practice, there are a number of factors that influence the shape and regularity of catchment areas. Among thse are :

(i) the infrastructure and the road network,

(ii) the means of getting to school and the time taken,

(iii) the boundaries of the administrative areas.

.../...

On top of this there are factors of a more pronouncedly political nature. It is obvious that a policy calling for greater social integration or a cutting-down of inequalities in the matter of education as between the various social categories may have an influence on where the boundaries of catchment areas are drawn.

EXERCISE Nº 9

NORMS AND CATCHMENT AREAS

I. Using the following assumptions compute the minimum population density required for the opening of a two-stream secondary day school with Forms I to IV.

(a) Circular catchment area

(b) Maximum walking distance = 7 km.

(c) Universal primary education

(d) 14 year-old population as a percentage of total population = 2.1 %

(e) Admission rate to secondary education = 10 %

(f) Number of students per section = 40.

II. The time-table for Forms I to IV is as follows for Agricultural and Domestic Science secondary schools.

	Agricultural stream				Domestic Science stream			
	Form 1	Form 2	Form 3	Form 4	Form 1	Form 2	Form 3	Form 4
Agriculture	8	8	10	10	-	-	-	-
Domestic Science	-	-	-	-	8	8	10	10
Political Education	2	2	2	2	2	2	2	2
Swahili	3	3	3	3	3	3	3	3
English	5	5	5	5	5	5	5	5
Mathematics	6	6	6	6	6	6	6	6
Biology	3	3	4	4	3	3	4	4
Chemistry	3	3	4	4	3	3	4	4
Physics	3	3	4	4	3	3	4	4
Geography	3	3	3*	3*	3	3	3*	3*
History	2	2	3*	3*	2	2	3*	3*
Religion	2	2	2	2	2	2	2	2
Music	3*	3*	3*	3*	3*	3*	3*	3*
Fine Arts	3*	3*	3*	3*	3*	3*	3*	3*
Foreign language	3*	3*	3*	3*	3*	3*	3*	3*
Teacher education	-	-	2*	2*	-	-	2*	2*
Physical education	2	2	2	2	2	2	2	2
TOTAL (not including optional activities)	42	42	42	42	42	42	42	42

* Optional subject (Each student should take one optional subject)

(a) Compute the total number of teachers required for a co-educational secondary school offering one agricultural stream and one domestic science stream, using the following assumptions :

- **Teacher work load = 24 periods per week**
- **Professor of science can teach physics, chemistry** or biology.
- **Professor of history can teach geography.**
- **Teacher education can be taught by any teacher.**
- For the teaching of optional subjects, the two streams of agriculture and domestic science are merged together ; they are split afterwards according to the option chosen by pupils : one group will take music, another fine arts, another foreign language.
- The religious teacher(s) is(are) not being paid by the Ministry of Education.

(b) Compute the number of equivalent full-time teachers and the teacher/pupil ratio, assuming that there are 40 students per section.

(c) Compute the total teaching **area required for the two folling alternatives.**

Alternative 1

- **Separate laboratories for physics, chemistry and biology.**
- **Special room for geography**
- **Special room for music and fine arts**
- **Special room for domestic science**
- **Physical education in open sports field**
- **All other subjects in general classrooms.**

Alternative 2

- **Multipurpose laboratories for physics, chemistry and biology**
- **Special room for Domestic Science**
- **Physical education in open sports field**
- **All other subjects in general classrooms**

For both alternatives, the teaching areas are as follows :

- General classrooms	64.2 sq. meters
- Physics laboratory (including preparatory room)	108.0 sq. meters
- Chemistry laboratory (" ")	108.0 " "
- Biology laboratory (" ")	108.0 " "
- Multipurpose laboratories	108.0 " "
- Art and Music room	107.0 " "
- Domestic Science room (including store)	129.0 " "
- Geography rooms	108.0 " "

Half of the time devoted to agricultural subjects is spent in the field.

The total number of weekly periods is 50. The normal time utilization rate is 80 %.

70

SOLUTION TO EXERCISE 9

NORMS AND CATCHMENT AREAS

I. On the assumption of a circular catchment area and a maximum walking distance of 7 kilometers, the total area covered by the catchment area is equal to :

$$A = 3.1416 \times 7^2 = 153.94 \text{ km}^2$$

In order to organize a two stream secondary day school, the number of new admissions should be 80.

Since the admission rate is assumed to be 10 %, the 14 year old population should be 800 which corresponds to a total population equal to $\frac{800}{0,021} = 38\ 095$

The population density should therefore be : $\frac{38095}{153,94} = 247\ /\text{km}^2$

II. Numbers of teachers required

The total number of teachers required as can be seen from the following table is 20 (plus one religious teacher).

The total number of equivalent full-time teachers is $\frac{372}{24}$ = 15.5

The teacher/pupil ratio is $\frac{320}{20}$ = 16.

	Agricultural stream				Domestic Science stream				TOTAL	No. o teach requi red
	Form 1	Form 2	Form 3	Form 4	Form 1	Form 2	Form 3	Form 4		
Agriculture	8	8	10	10	-	-	-	-	36	2
Domestic Science	-	-	-	-	8	8	10	10	36	2
Political Education	2	2	2	2	2	2	2	2	16	1
Swahili	3	3	3	3	3	3	3	3	24	1
English	5	5	5	5	5	5	5	5	40	2
Mathematics	6	6	6	6	6	6	6	6	48	2
Biology	3	3	4	4	3	3	4	4	28)	
Chemistry	3	3	4	4	3	3	4	4	28)	4
Physics	3	3	4*	4*	3	3	4*	4*	28)	
Geography	3	3	3*	3*	3	3	3*	3*	18)	2
History	2	2	3*	3*	2	2	3*	3*	12)	
Religion	2	2	2	2	2	2	2	2	16	(1)
Music	3*	3*	3*	3*	3*	3*	3*	3*	12	1
Fine Arts	3*	3*	3*	3*	3*	3*	3*	3*	12	1
Foreign language	3*	3*	3*	3*	3*	3*	3*	3*	12	1
Teacher education	-	-	2*	2*	-	-	2*	2*	4	
Physical education	2	2	2	2	2	2	2	2	16	1
TOTAL (not including optional activities)	42	42	42	42	42	42	42	42	388	20 (

* Optional subject (Each student should take one optional subject)

The religious teacher is being paid by the Government.

III. Teaching area required

	Number of periods	Number of rooms required	Rate of util.	Area per unit	Total area
ALTERNATIVE I					
Chemistry	28	1	56.0	108.0	108.0
Physics	28	1	56.0	108.0	108.0
Biology	28	1	56.0	108.0	108.0
Geography	18	1	36.0	108.0	108.0
Music & Fine Arts	24	1	48.0	108.0	108.0
Domestic Science	36	1	72.0	129.0	129.0
Other subjects	192*	5	73.3	64.8	324.0
TOTAL	354*	11	59.0		993.0
ALTERNATIVE II					
Chemistry) Physics) Biology)	84	2	84.0	108.0	216.0
Domestic Science	36	1	72.0	129.0	129.0
Other subjects	234*	6	77.1	64.8	388.8
TOTAL	354*	9	70.8		733.8

* Not including physical education. Half of the periods for agriculture will take place in the field.

Appendix to solution of one stream secondary school

Table I Number of teachers required for a one stream Agricultural school.

Subject	Form 1	Form 2	Form 3	Form 4	Total	Teachers required
Agriculturre	8	8	10	10	36	2
Political Education	2	2	2	2	8	1
Swahili	3	3	3	3	12	
English	5	5	5	5	20	1
Mathematics	6	6	6	6	24	1
Biology	3	3	4	4	14	2
Chemistry	3	3	4	4	14	
Physics	3	3	4	4	14	
Geography	3	3	3	3	12	1
History	2	2	3	3	10	
Religion	2	2	2	2	8	1
Music	3	3	3	3	12	1
Fine Arts	3	3	3	3	12	
Foreign Language	3	3	3	3	12	1
Teacher Education			2	2	4	
Physical Education	2	2	2	2	8	1
Total (not including optional activities	42	42	42	42	168	12

(a) The total number of teaching periods is equal to

Compulsory subject	168
Optional subject	52
Total	220

(b) The number of full time equivalent teachers is:

$$\frac{220}{24} = 9.2$$

(c) The rate of utilization of teacher is:

$$\frac{220}{24 \times 12} = 100 = 76.3\%$$

(d) The pupil teacher ratio is:

$$\frac{160}{12} = 13.3$$

Table 2 **Teaching area required**

Subjects	No of periods	Number of rooms required	Rate of utilization	Area per Unit	Total Area
Alternative I					
Chemistry	14	1	28.0	108.0	108.0
Physics	14	1	28.0	108.0	108.0
Biology	14	1	28.0	108.0	108.0
Geography	9	1	18.0	108.0	108.0
Music & Fine arts	12	1	24.0	108.0	108.0
Other subjects	131	3	87.3	64.8	194.4
Total	194	8	48.5		734.4
Alternative II					
Chemistry Physics Biology	42	1	84.0	108.0	108.0
Other subjects	152	4	76.0	64.8	259.2
Total	194	5	77.6		367.2

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LECTURE Nº XII

THE PROSPECTIVE SCHOOL MAP : TECHNIQUES AND PREPARATION

by

F. Caillods

There is no localization technique which can be universally applied. Different methods can be used according to the situation and the level of education. It is quite clear that the implementation of universal primary education in rural areas requires location techniques somewhat different from those needed in the rationalization of a school network with declining enrolment : or in the drawing of a post-compulsory school map. In all cases, a certain number of principles can be applied. It is suggested that an assessment of supply and demand per homogeneous area be prepared before formulating proposals for the location of educational centres.

I. ASSESSMENT OF SUPPLY AND DEMAND PER HOMOGENEOUS AREA

It is possible to estimate the theoretical capacity of buildings at the base year on the basis of the survey of existing school facilities and the results of the diagnosis. This capacity (supply) will be set against the potential demand as previously estimated for the short and medium term.

All schools which will be closed in the short or medium term should be subtracted from this capacity when :

- enrolments are below the minimum standard of the country (for example, if the new policy is to suppress one-teacher schools) ;
- facilities are in very poor condition and do not conform to new requirements.

On the other hand, all buildings which have an excess capacity should be listed (this may be the case if a fall in enrolment has recently been recorded or if the timetable has been reorganized). New buildings which have been judged inadequate for a certain level of education can be used for another level of education and should thus be taken into account in the assessment.

The comparison between capacity and future enrolment leads to net requirements per geographical area (surplus or deficit) :

Total pupil/place requirements	=	Existing resources	+	Net requirements
↓		↓		↓
Enrolments to be accommodated		Existing schools & places being built		Premises to be built

The supply-demand assessment per area will serve as a basis for new location proposals.

II. LOCATION TECHNIQUES

How to rationalize the existing network and where to locate new schools ?

When making proposals for the location of new schools, the integration of school maps at different levels should be checked : in other words, the map of lower secondary schools should be based on the primary school map, the map of upper secondary schools should be based on the lower secondary school map, etc.. It is thus recommended to start with the first level school map.

The organization of a school network should fulfill the following conditions :

- ensure a fair geographical distribution of supply and achieve a balance between supply of and demand for school places in each geographical area ;
- conform to national norms and standards (minimum size - maximum size, maximum walking distance) ;
- be as efficient as possible in terms of cost.

The larger the number of students in a school, the higher the pupil/teacher ratio and the rates of utilization of premises. On the other hand, it may be necessary to plan for school transportation or boarding facilities. The study of certain problems may require methods of operational research.

In general, more empirical methods are used. For example, at primary educational level :

- Estimate the number of pupils to be catered for in each village (and in certain cases, in each school).
- Examine each school below the minimum size norm : if it is sufficiently close to another school, its closure (or merging) with the other school could be proposed.
- List, in each region, the schools to be closed, kept open, enlarged or rebuilt and list villages without a school.
- Single out : (a) regions of high population density where a network of complete schools may be easily set up in nearly every village ;

(b) regions of average density, where a network of complete schools may be envisaged provided that one school serves several neighbouring villages ; (c) regions of low population density where special solutions should be found (one-teacher school, transport, boarding, central and satellite schools, etc.).

- Identify the largest villages which are not served by the present school network and where new schools should be located in priority. The largest village can be :
  - (a) The largest population centre or the "growth point" in economic and social terms. Information should be collected on regional development plans. What are the programmes of location for road construction, cooperative hospitals and health centres, building, etc..
  - (b) The best located centre as far as main communication routes are concerned.
  - (c) The centre of gravity of a region obtained by weighting the distance between villages by their respective forecasted enrolments. One should take the relief, state of roads, into account.
- Define catchment areas attached to these new schools, taking into account the maximum walking distance allowed, the maximum time of access. This can be done by grouping villages (or districts or counties), until a satisfactory school size is arrived at.
- Isolate villages not served by any of the existing or planned schools. Identify the largest one as previsouly defined and repeat the process mentioned above, until the size of the remaining villages is smaller than would be the minimum to set up a normal one-stream school.

There, ad hoc formulae will have to be studied (one-teacher school/ incomplete satellite school attached to a centre school/transport, canteen, boarding, non-formal boarding, etc.).

At the secondary education level, the approach is very similar :

1. Estimate for each primary school the number of pupils who could have access to secondary education.
2. Identify the largest centres/towns which are not served by the present school network and where a junior secondary school could be built. This centre would be selected with the same criteria as mentioned for primary education.

3. Define the catchment area attached to that school, taking into account the maximum walking distance allowed, and the possibility of transportation. This can be done by grouping primary schools (or villages or wards) until we reach the minimum or optimum size as defined by the norms and standards.

4. Isolate areas not served by any existing or planned school. Identify the largest centre and repeat the process mentioned above.

5. If within a reasonable catchment area (5 to 10 Kms. radius) we cannot set up a school corresponding to the minimum size, solutions such as transportation or boarding have to be studied.

6. Try to create schools of sufficient size optimizing pupil/teacher ratio as well as minimizing transport and boarding costs.

If the use of different criteria leads to different sets of proposals, a trial and error method should be applied until one arrives at two sets of proposals based on two different and clearly defined policies. Costs and advantages of those proposals will then have to be measured.

Illustration : Organizing a network of junior secondary schools : The case of Paiko District, Niger State, Nigeria.

Paiko district has 32 primary schools, but no secondary schools. The objective of the educational policy is to open junior secondary schools to 40 % of primary school graduates by 1984/85. It is therefore necessary to create a network of junior secondary schools allowing equal opportunities of access to pupils, both in urban and rural areas.

Children could walk 5 Kms to school. There should be between 35 and 40 pupils per section in junior secondary schools.

Concerning the possible location of these junior secondary schools, two solutions are feasible :

(1) to insist on the creation of rather big schools (more efficient in terms of use of teachers and facilities), and making it necessary to plan for boarding facilities ;

(2) to minimize the cost of boarding and transportation, a larger number of small schools will have to be built.

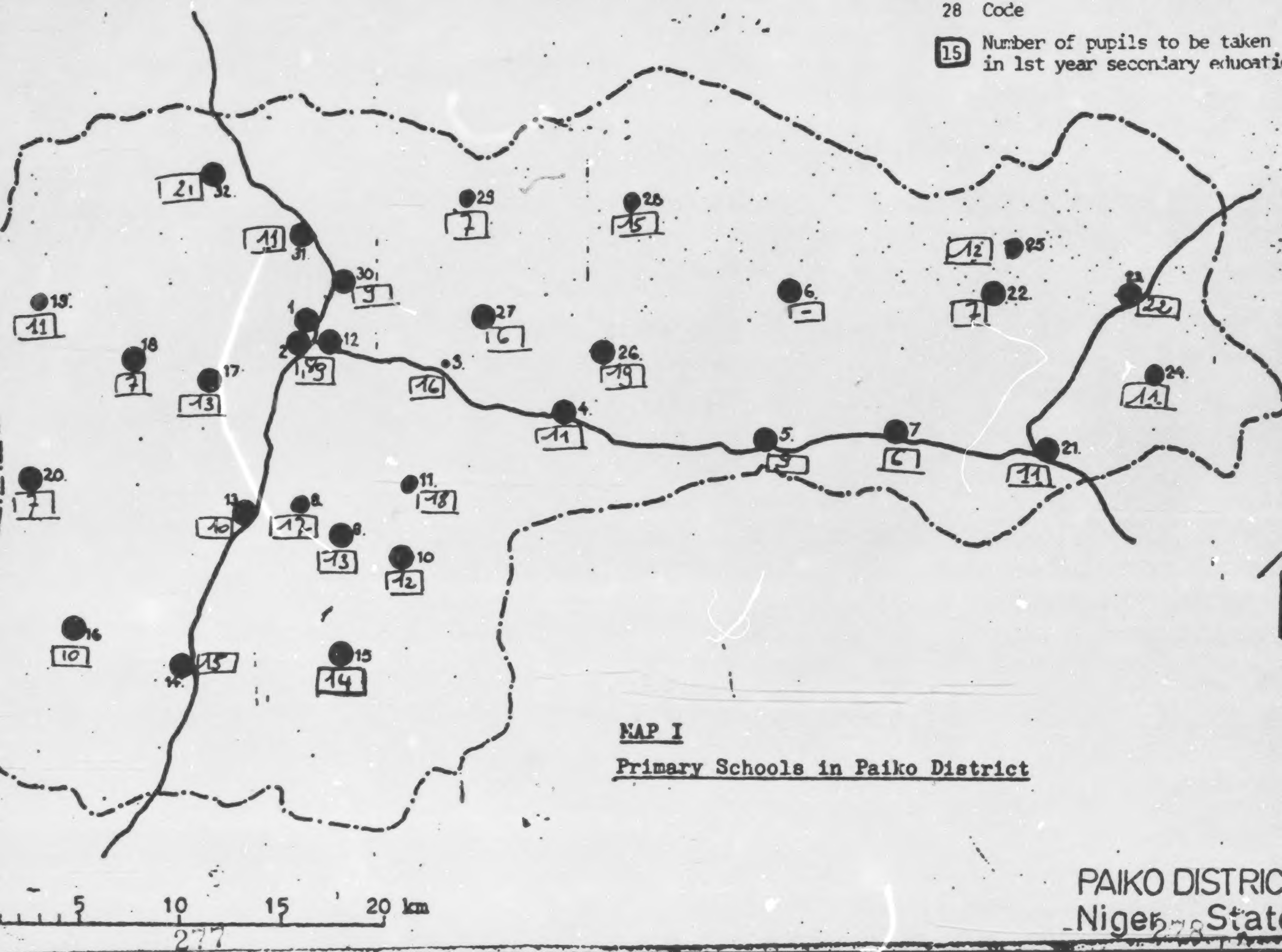
Map Nº 1 : Shows the location of primary schools and indicates for each school the number of pupils who should enter secondary education Form I in 1984/85 (according to a 40 % transition ratio).

Table 1 : Indicates utilization rates and pupil/teacher ratios for various sizes of schools.

Table 1 : Utilization rates and pupil/teacher ratios by size of school (junior secondary)

Data	Formula 1	Formula 2	Formula 3	Formula 4	Formula 5	Formula 6
1. Total enr.	100	200	300	405	500	600
2. No. of streams	3	6	9	12	15	18
3. Streams per form 1	1	2	3	4	5	6
4. Teaching periods per week:						
- General	65	130	195	260	325	390
- Multipurpose	32	64	96	128	160	192
- Science	15	30	45	60	75	90
- Agr. & Phy. ed.	18	36	54	72	90	108
Total	130	260	390	520	650	780
5. Requirements of teachers						
- in real numbers	11	12	17	20	26	29
- in FTE	4.5	9	13	17.5	22	26
6. Requirements of classrooms:						
- General	2	4	5 or 6	7 or 8	9 or 10	10 or 11
- Multipurpose	1	2	3	4	4 or 5	5 or 6
- Science	1	1	2	2	2 or 3	3
7. Index of utilization:	%	%	%	%	%	%
- General c.r.	81.25	81.25	97.5 or 81.25	92.9 or 81.25	90.3 or 81.25	97.5 or 88.6
- Multipurpose classroom	80.0	80.0	80.0	80.0	100.0 or 80.0	96.0 or 80.0
- Science C.R.	37.5	75.0	56.25	75.0	93.7 or 62.5	75.0
8. Pupil/teacher ratio:						
- in real number	9.1	16.7	17.6	20.25	19.2	20.7
- in FTE	22.2	22.2	23.1	23.1	22.7	23.1

Note: (a) FTE = Full time equivalent
(b) Average number of students per stream: 35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15 Number of pupils to be taken in 1st year secondary educatio
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PAIKO DISTRIC
Niger State

MAP I

Primary Schools in Paiko District

Alternative 1 : Boarding is possible

4 schools are planned :

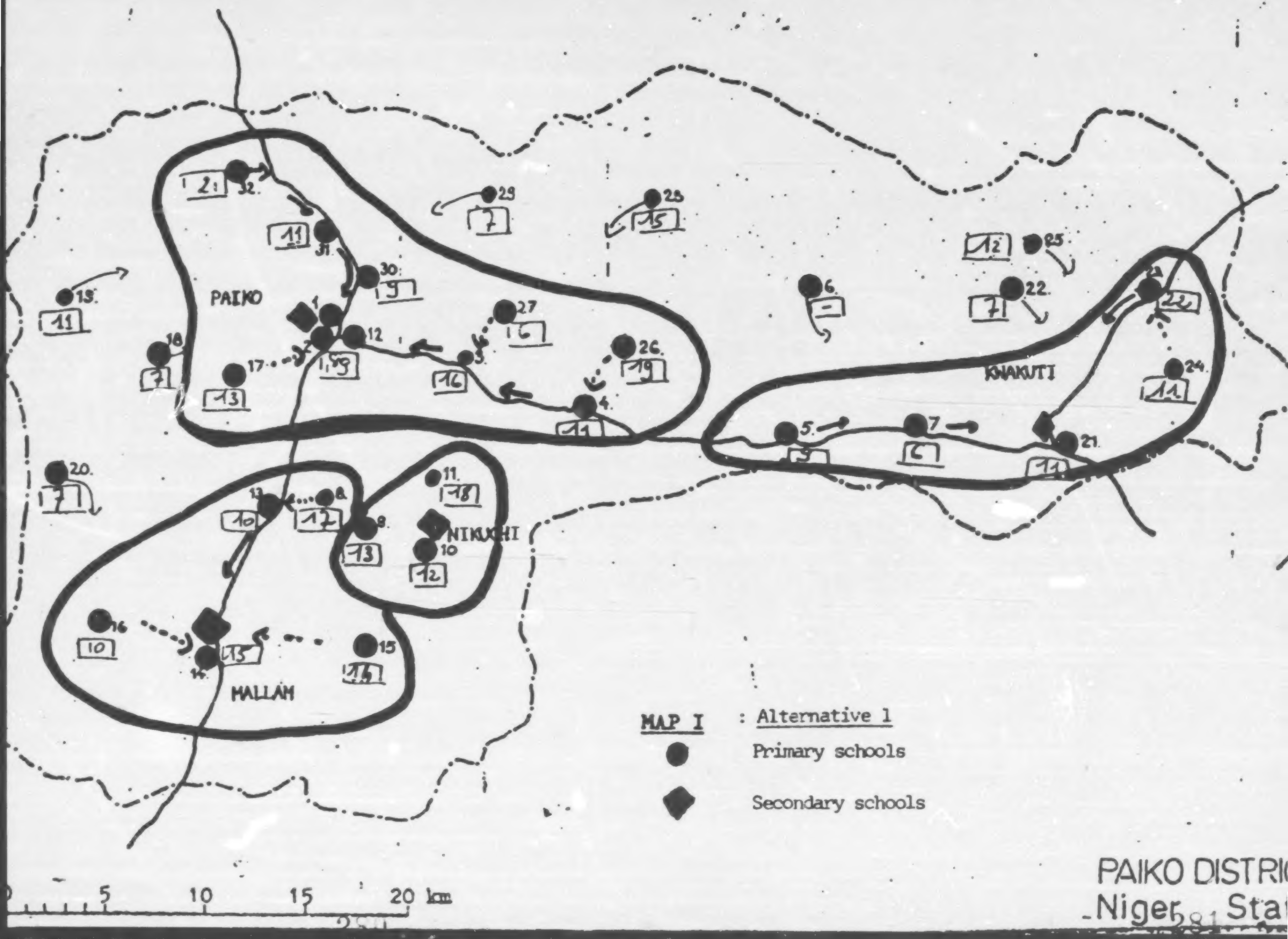
	Form I enrolments	Plus boarders	Total	Nº of streams in Form I	Type
Paiko	195	40	235	6	6
Kwakuti	59	19	78	2	2
Nikuchi	43	-	43	1	1
Mallem	66	7	73	2	2

Boarding and transportation have to be planned.

Alternative 2 : Boarding schools should be exceptional

The building of 5 schools is planned :

	Form I enrolments	Plus boarders	Total	Nº of streams in Form I	Type
Chimbi	63	-	63	2	2
Gwam	60	-	60	2	2
Paiko	197	11	208	5	5
Gabona	60	-	60	2	2
Mallam	39	-	39	1	1


PAIKO
KWAKUTI
NIKUCHI
MALLAM
0 5 10 15 20 km

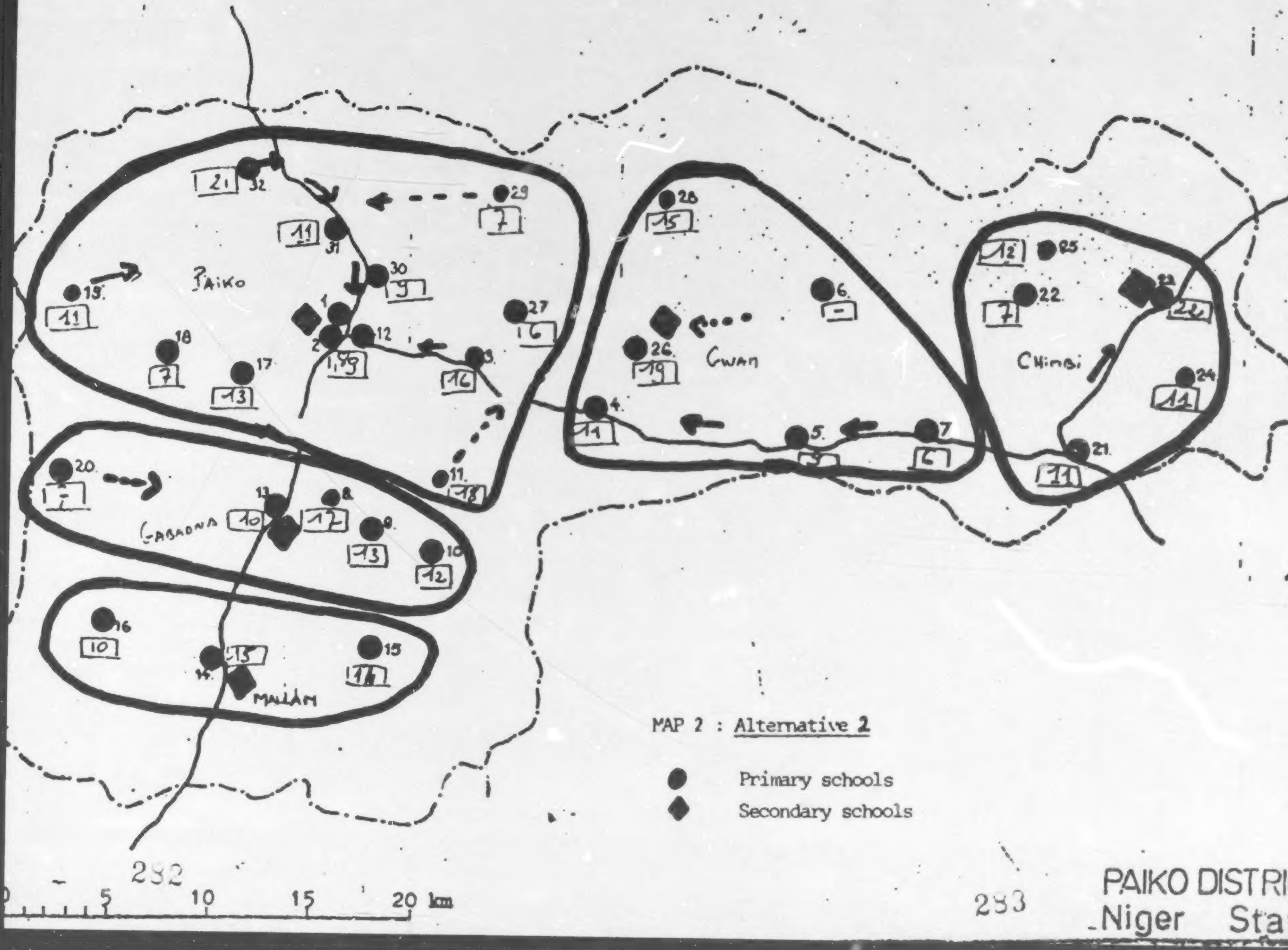
MAP I : Alternative 1

● Primary schools

◆ Secondary schools

PAIKO DISTRI

Niger Sta


PAIKO
GWAN
CHIMBI
GABAONA
MALLAM
0 5 10 15 20 km

MAP 2 : Alternative 2

● Primary schools
◆ Secondary schools

PAIKO DISTRI
Niger Sta

	Alternative 1	Alternative 2
Enrolment Form 1	430	430
Total enrolment	1 290	1 290
Number of schools	4	5
Type 1	1	1
Type 2	2	3
Type 5	-	1
Type 6	1	-
Teachers required	64	73
General classrooms required	21	24
Workshops and laboratories required	17	19
Comments	Boarding (200 pupils) & transportation to be provided	Some boarding and some transportation

EXERCISE No.10

PROSPECTIVE PRIMARY SCHOOL MAP

1987 PRIMARY SCHOOL MAP IN THE KIDODI AREA

Enrolment in Primary schools for the whole of the Kidodi area has been previously estimated at 6,034 pupils in 1987, compared to 5,358 in 1981.

Using the data given in Table 1, as well as complementary data available in other exercises (Appendix 1 of Exercise 6 ; Table 2 of Exercise 2):

- estimate what could be the 1987 enrolment of each village/school at primary level(1);
- compute the number of stream (37 pupils per stream);
- make recommendations concerning the expansion/merging of existing schools, or the location of new schools.

---

(1) You are advised to distribute 1987 enrolment proportionately to the total population in 1978.

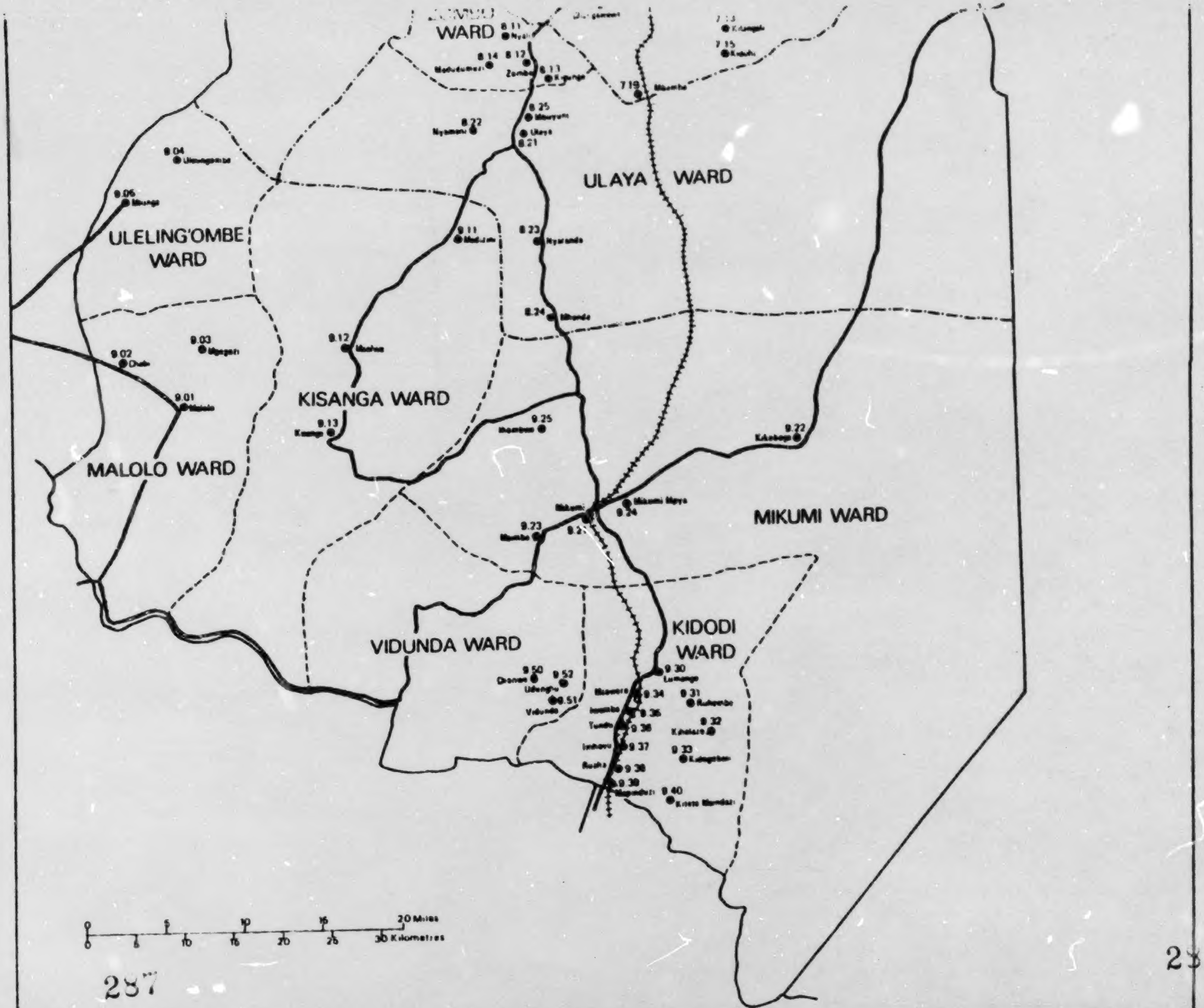
Table 1.: **Summary of data on Kidodi Primary schools**

Village	Population 1978	Primary School No.	Enrolment 1981 Grade 1	Enrolment 1981 Total	Number of streams 1981 Grade 1	Number of streams 1981 Total	Land for expansion	Classrooms	State	Other Premises used	Distance to next prim. school
Chonwe	1,911	950	51	390	1	9	Yes	5	B	(3R)	4 kms.
Vidunda	1,595	951	42	350	1	9	Yes	8	5VB-3R		8 kms.
Udunghu	3,456	952	97	646	2	14	Yes	10	10R		4 kms.
Lumango	835	930	22	235	1	7	Yes	6	6R		1.5 kms.
Msowero	1,220	934	26	291	1	8	No	4	4R	(1VB)	1.5 kms.
Lwemba	1,425	935	31	290	1	8	Yes	7	7G		1.5 kms.
Tundu	2,112	936	43	359	1	8	Yes	4	4R	(1VB-2R)	0.5 kms.
Kifinga	1,958	937	47	344	1	9	Yes	7	1R-6G		0.5 kms.
Kidodi URB	9,839	938	151	545	2	10	Yes	5	5R	(2R)	1 km.
		939	128	698	2	13	Yes	8	2R-6G		1 km.
Luaembe	2,399	931	47	320	1	8	Yes	6	6R		2.5 kms.
Kidogobasi	3,424	(932	34	227	1	6	Yes	6	4VB-2R		3 kms.
		(933	31	296	1	8	Yes	6	6R		4.5 kms.
Kiteti Msindazi	2,042	940	50	367	1	8	Yes	7	7R		5 kms.
TOTAL	32,216		800	5,358							

Enrolment by school, 1981

	Std.I.	Std.II.	Std.III.	Std.IV.	Std.V.	Std.VI.	Std.VII.	TOTAL
950	51	44	72	96	44	42	41	390
951	42	37	32	108	40	48	43	350
952	97	98	100	116	147	49	39	646
930	22	20	37	36	34	52	34	235
934	26	37	54	85	43	46	-	291
935	31	32	41	64	46	42	34	290
936	43	37	52	132	52	43	-	359
937	47	29	70	77	35	43	43	344
938	151	92	64	84	50	50	54	545
939	128	174	117	132	52	39	56	698
931	47	50	55	121	47	-	-	320
932	34	38	44	111	-	-	-	227)
933	31	45	35	49	61	40	35	296)
940	50	48	34	86	85	36	28	367
Total Kidodi 1981	800	783	780	1 322	709	553	411	5 358
Kidodi 1987	1 162	1 032	965	834	729	684	628	6 034

Exercise No.10


WARD
8.11
8.14
8.12
Madudumezi
Zombo
8.13
7.13
7.15
7.19
Mbamba
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8.22
Nyamoru
Ulaya
8.21
ULAYA WARD
9.04
9.06
ULELING'OMBE WARD
9.11
8.23
8.24
9.12
9.03
9.02
9.01
KISANGA WARD
9.13
9.25
9.22
MALOLO WARD
Mikumi
Mikumi Mpya
9.24
9.23
MIKUMI WARD
KIDODI WARD
VIDUNDA WARD
9.50
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9.51
Vidunda
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Lumango
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Tundu
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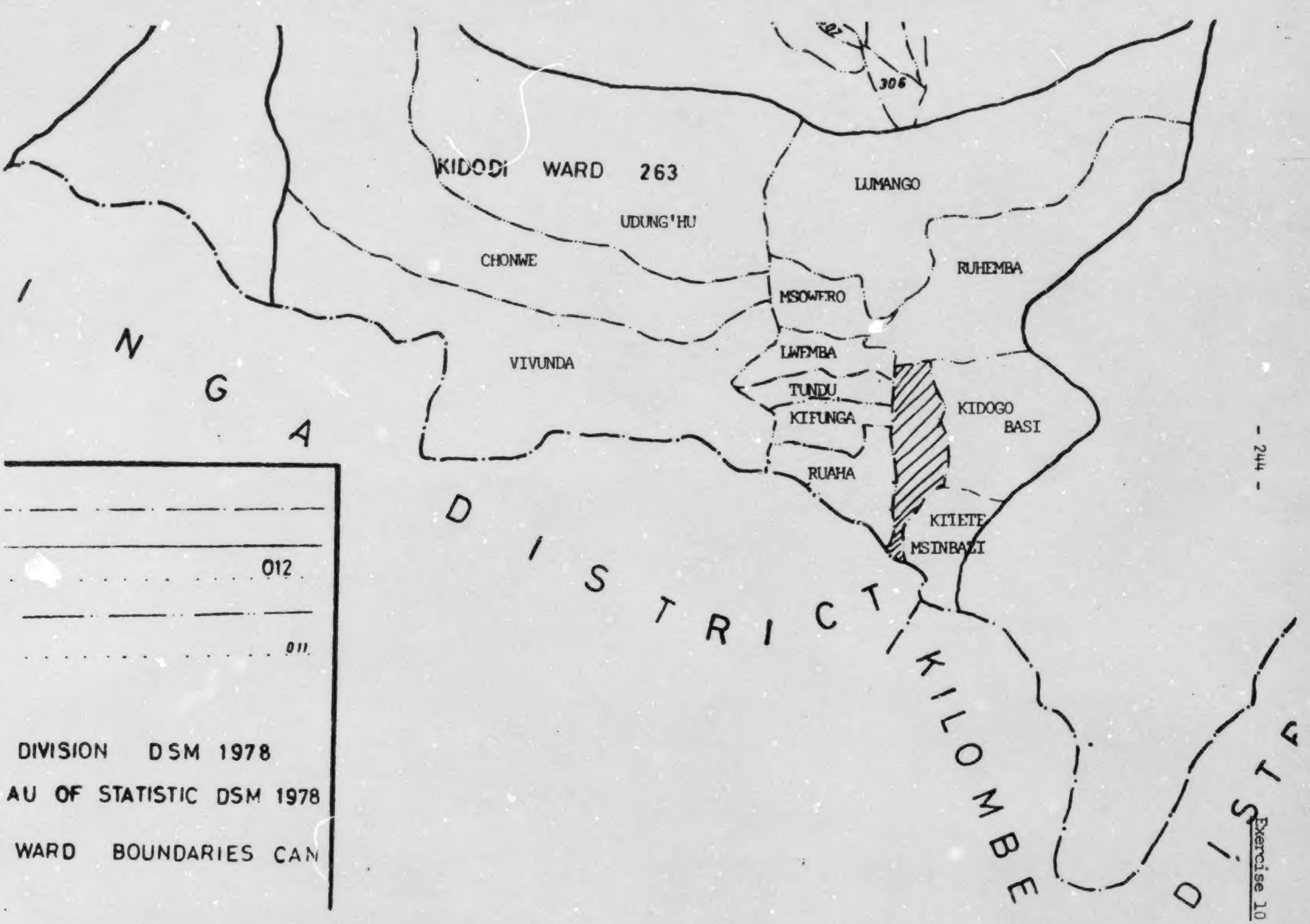
KIDODI WARD 263
LUMANGO
UDUNG'HU
CHONWE
RUHEMBA
MSOWERO
LWEMBA
VIVUNDA
TUNDU
KIFUNGA
KIDOGO
BASI
RUAHA
KITETE
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306
I N G A D I S T R I C T
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DIVISION DSM 1978
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WARD BOUNDARIES CAN

Exercise 10

SOLUTION TO EXERCISE No.10

PROSPECTIVE PRIMARY SCHOOL MAP

If there has been no dramatic change in the distribution of population among villages after 1978 - no special migration in particular - one can estimate the enrolment of each school by assuming its share in total enrolment of the area is the same as the share of the village population in the total population of the area.

Some schools will see their enrolment declining as a result of the resorption of late entry (actual enrolment in Std. III to IV is inflated by the high number of overaged pupils). Other schools will have a quick increase in enrolment - particularly in Kidodi urban area which has, for the time being, only two small schools for a very large population.

If the policy is :

- to rehabilitate bad classrooms,
- reconstruct very bad classrooms,
- avoid double shift (there should be six classrooms for seven streams)(1),
- enforce a norm of 37 pupils per stream (instead of 75 in Standard I of school 938 and 939),

a large number of classrooms will have to be built.

---

(1) Standards I and II will remain half-day. Standards III and IV should become full-day.

Table 1.

Village	School	Population	Enrolment 1981	Enrolment 1987	No. of streams 1987	No. of classrooms	Comment
Chonwe	950	1 911	390	360	10	(5B)	Rehabilation + 3 new classrooms
Vidunda	951	1 595	350	300	8	3R - 5VB	reconstruction of 4 classrooms
Udunghu	952	3 456	646	647	18	10R	5 new classrooms
Lumango	930	835	235	156	4	6R	(Merging - no new construction
Msowero	934	1 220	291	230	6	4R	(needed
Lwemba	935	1 425	290	267	7	7G	(Could share facilities -
Tundu	936	2 112	359	395	11	4R	(4 new rooms needed
Kifinga	937	1 958	344	367	10	1R 6G	1 more classroom needed
Kidodi UBR	(938 939	9 839	(545 698	1 843	50	5R 2R-6G	Expan. existing schls. & creation of new 4 stream school
Luaembe	931	2 399	320	450	12	6R	4 new classrooms
Kidogobasi	(932 933	3 424	(227 296	640	17	2R - 4VB 6R	(reconstruction of 4 rooms (+ 2 new ones
Kiteti Msindazi	940	2 042	367	380	10	7R	1 new classroom
Total		32 216	5 358	6 034	163		

Enrolment Primary $\frac{6034}{32\ 216} = 18.7\ \%$

EXERCISE No. 11

PREPARATION OF THE SECONDARY SCHOOL MAP

Two alternatives have been considered regarding the increase in the transition ratio in the district. In the first alternative, the transition ratio increases from 2.2% in 1981/1982 to 5.2% in 1984/85 and 12.6% in 1986/87. In this case, enrolment in Form I would be equal to 700 in 1987 and total enrolment in the district secondary schools to 2,145.

In the second alternative, the transition ratio increases from 2.2% in 1981/82, 2.1% in 1984/85, to 5.5% in 1986/87. Enrolment in Form I would reach 300 in 1987 and total enrolment 875 pupils.

Assuming that the transition ratio increases the same way in each zone and ward, enrolment in Form I of secondary education by zone can be estimated for 1987 as shown in Table 1.

The existing secondary school can become a four-stream school accommodating 640 boarders, provided a certain number of conversions are made, namely: transforming the actual workshop into two laboratories, the unused barber's shop into a classroom, extending boarding capacities, etc.

Table 1 : Enrolment in secondary education by zone in 1987

Zone	Enrolment Standard I 1981	Enrolment Form I 1987	
		Altern. 1	Altern. 2
North	2,823	226	97
North-East	598	50	21
Kimamba	1,142	93	40
Kidete	485	52	22
Kilosa	594	58	25
Masanze	830	84	36
Mikumi	557	52	22
Kidodi	800	85	37
Total	7,829	700	300

Assuming :

- there should be 40 pupils per stream;
- the minimum size of a secondary school is a one stream school but whenever possible two-stream school should be considered instead (80 pupils in Form I becoming after a few years 320 pupils in Form I to IV);
- as many day-schools as possible should be created;

- walking distance between home and school should not exceed 7 Kms.;
- existing or newly-created schools in the district should first accommodate pupils from the district or adjacent ones;

and using :

- the data given on each school of the district in Table 2 of Exercise 2;
- the big map showing the location of primary schools and distance between them;

how would you organize the map of the public secondary school in the district in the two alternatives?

You are advised to :

- start identifying those zones and wards which, with the existing norm of size and planned transition ratio, could never have a day-school;
- estimate Form I enrolment by ward or school, assuming there is a fixed ratio between Standard 1 in 1981 and Form 1 in 1987;
- identify potential location of day-secondary schools and design their catchment area; propose their creation if they meet the minimum size norm;
- propose the location of boarding schools to accommodate those pupils who cannot be accommodated in day schools.

Note: Private schools include a one-stream school in Kilosa and two one-stream schools : one in Lwemba (Kidodi) and the other in Mgugu (Magubike), planned to open in 1982/1983.

Projection of secondary enrolment (whole district)

	Std. VII Total District	Alternative 1 Rrans. Ratio	Form 1 enrolment	Alternative 2 Tran. Ratio	Form 1 enrolment
1981	3,909	2.2%	102	2.2	102
1982	5,716	3.5%	84	1.8	84
1983	7,019	4.3%	200	2.1	103
1984	9,700	5.2%	300	2.1	147
1985	6,612	10.6%	500	3.8	204
1986	5,460	12.8%	700	5.5	251
1987	6,000		700		300

SOLUTION TO EXERCISE 11

PREPARATION OF THE SECONDARY SCHOOL MAP

Zone	Std. I 1981	Form I 1987				To have 40 pupils in Form 1 in 1987, one should have in std.1 in 1981	
		Altern. 1		Altern. 2			
		(2)	(2)/(1)	(3)	(3)/(1)	Altern. 1	Altern.2
North	2823	226	8.0%	97	3.4%	500	1176
North East	598	50	8.3%	21	3.5%	482	1143
Kimamba	1142	93	8.1%	40	3.5%	494	1143
Kidete	485	52	10.7%	22	4.5%	374	889
Kilosa	594	58	9.8%	25	4.2%	408	952
Masanze	830	84	10.1%	36	4.3%	396	930
Mikumi	557	52	9.3%	22	3.9%	430	1025
Kidodi	800	85	10.6%	37	4.6%	377	870
District	7829	700		300			

Alternative 1

Enrolment are estimated at 700 pupils in Form 1 in 1987. This means that 18 streams should be accommodated in the district. The existing boarding school can accommodate 4 streams. 14 new streams should therefore be created.

The only wards where a day school could eventually be considered (one stream school) are : in the North Chakwele, Gairo; in the Center Kilosa Mjini; may be Kimamba/Masanze and Magubike/Mambuya - in the South Kidodi.

Proposed Location of School	Catchment area	Std. I in 1981	Comments
Gairo 124	121-122-123-124-125 127-128-129 132-133-134	447	36 pupils in Form I one stream school
Chakwale 111	111-113-114-115-116 117-118-119-120 130	428	34 pupils in Form I one stream school
Rudewa Secondary school	601-604-615-614 602	345	28 pupils in Form I
Kimamba/ 622 Mabwerebwere	611-612 621.622.623 701-702-703	604	49 pupils in Form I one stream school
Kilosa 512	All schools of Kilosa Mjini plus 706	626	61 pupils in Form I two streams school

(Table continued)

Proposed Location of school	Catchment area	Std.1 in 1981	Comments
Kidodi 512	930-931 933 to 939 951 - 952	665	70 pupils in Form I two streams school
Magubike/Mamboya 207-203	201 - 203 - 205-207 224	337	No

There could be three one-stream secondary schools- one in Gairo, one in Chokwele, one in Kimamba. Two two-stream secondary schools could be planned - one in Kilosa, one in Kidodi if we admitted a slightly higher transition ratio in these two catchment areas.

We could also have 28 pupils from schools 601, 602, 604, 614 and 615 coming as day students to the existing boarding school. All other students would have to be accommodated as boarders. It is suggested to increase the enrolment of the planned one stream school to two-stream school, adding to each of them one stream of boarders, and the planned two stream schools to four streams schools adding two streams of boarders to each of them.

Summary:

	Boarders	Day students	Total
Existing boarding school	3 streams + 12 pupils	28 (1 stream)	4 streams
Kilosa	2 streams	2 streams	4 streams
Kidodi	2 streams	2 streams	4 streams
Kimamba	*1 stream	1 stream	2 streams
Gairo	*1 stream	1 stream	2 streams
Chokwele	*1 stream	1 stream	2 streams
Total	10 streams	8 streams	18 streams

Note : If it turned out to be more expensive to create boarding places for one stream in three different schools, rather than create a completely new boarding school, we could propose the creation of a 4 stream school with 3 streams of boarders in Kimamba for example - it depends on the standard of boarding facilities that is envisaged.

Alternative 2

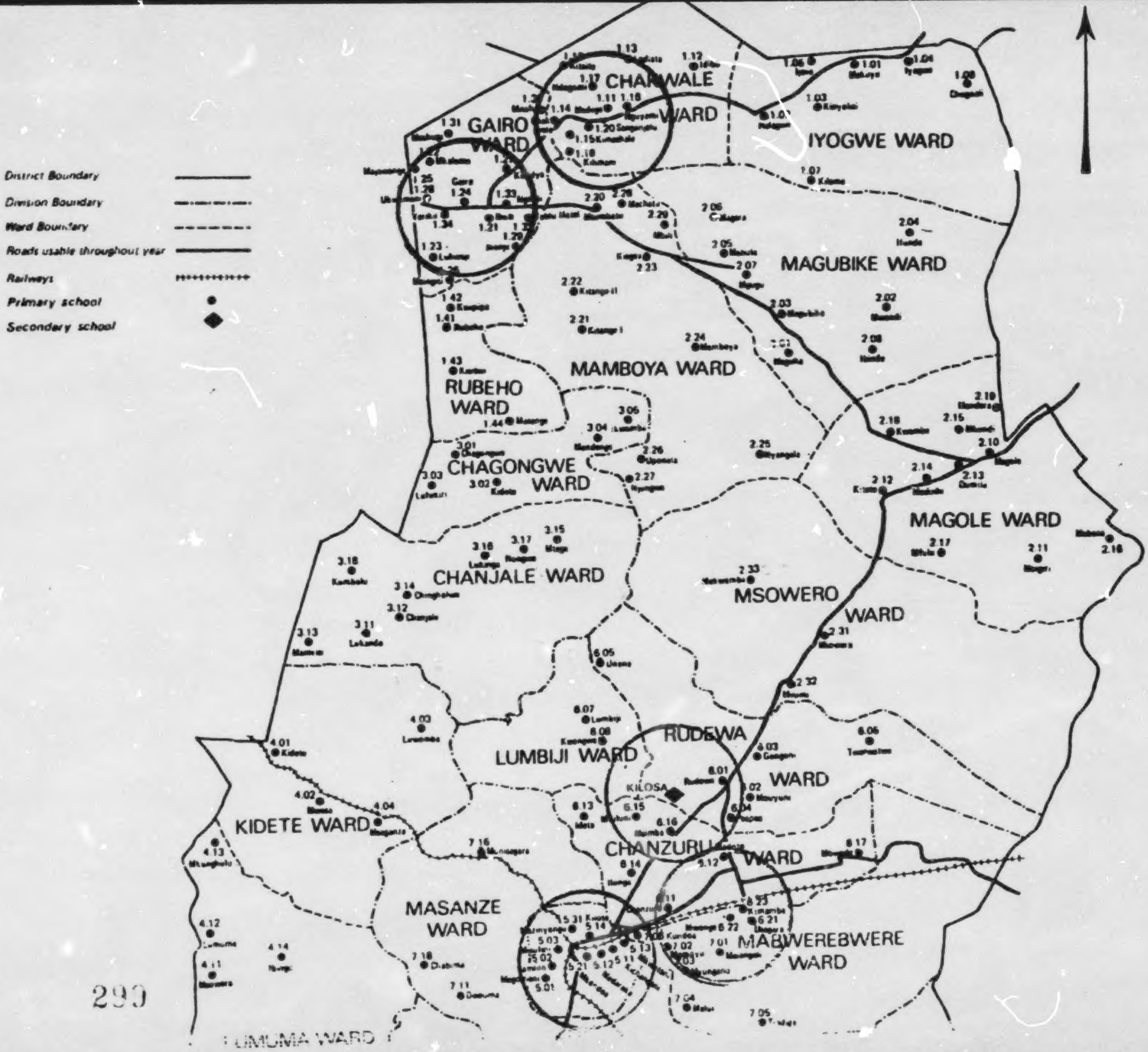
Enrolment in Form 1 is estimated at 300 pupils in 1987 i.e. 8 streams. Since there is already one school which can accommodate 4 streams, 4 new streams will have to be created. With the envisaged transition ratio it does not seem possible to create any day school - even one stream school - in any one ward - a possible exceptionKidodi.

Proposed Location of school	Catchment area	Std. 1 in 1981	Possible enrolment in Form 1 1987
Kilosa	Kilosa Mjini + 706	626	26
Kidodi	930 - 931 933 to 939 951 - 952	665	31
Kimamba	611 - 612 621 to 623 701 to 703	604	21

Various solutions can be proposed which have different implications in terms of cost and in terms of equality of opportunity.

Solution	Equality of opportunity	Cost
I 1 big boarding school (4streams) in addition to the existing 4 stream boarding schools	good	probably too high
II 4 one stream day schools in addition to the existing boarding schools (Kilosa, Kidodi, Kimamba, Gairo)	Some inequality (higher transition ratio in the 4 catchment areas)	medium high
III 2 two streams day schools in addition to the existing boarding school (Kilosa - Kidodi)	High transition ratio in the 2 Catchment area (unequal)*	lower

** The more unequal the situation would be because it is already in these two towns that private schools are found.

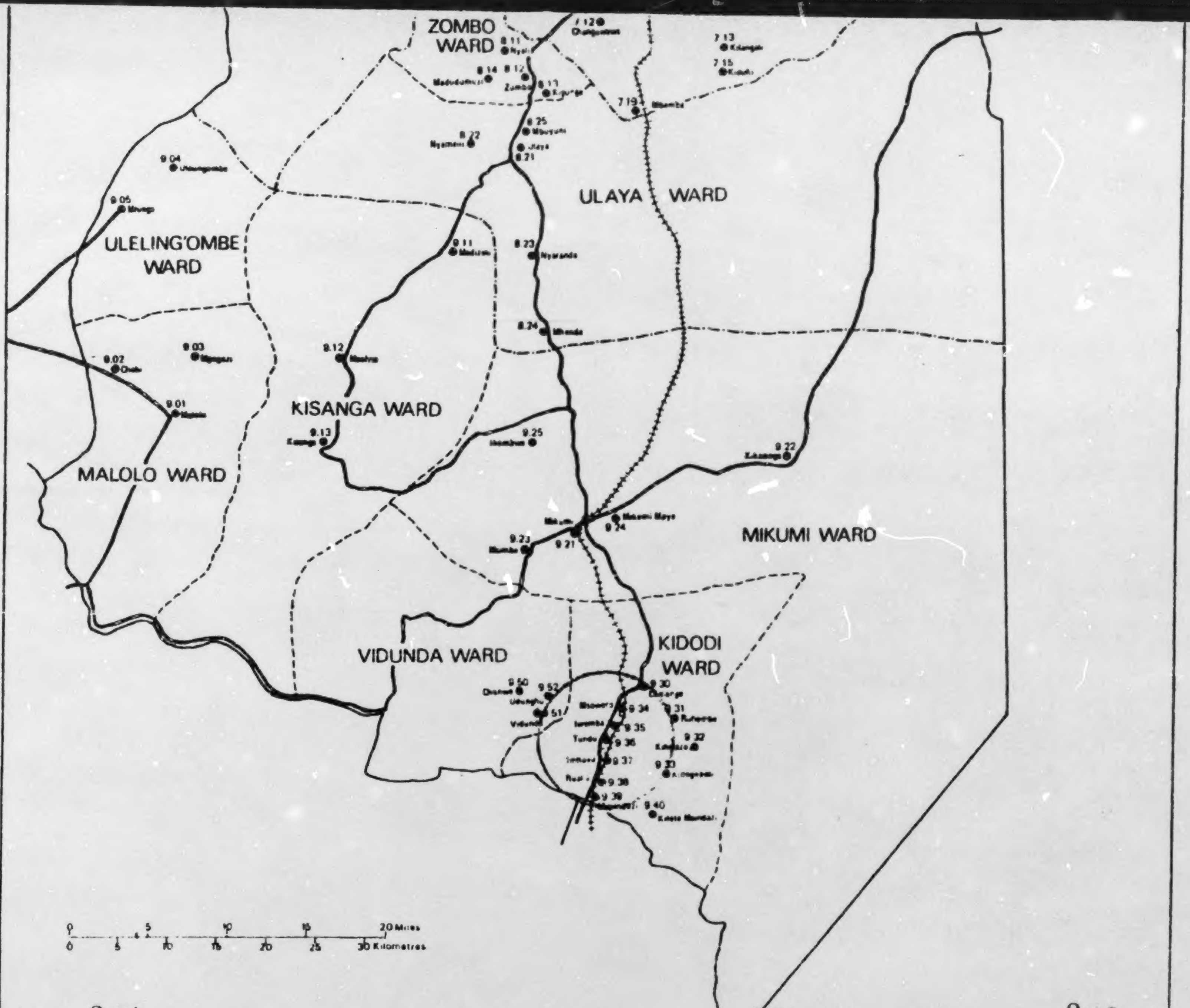

District Boundary
Division Boundary
Ward Boundary
Roads usable throughout year
Railways
Primary school
Secondary school
CHAKWALE WARD
GAIRO WARD
IYOGWE WARD
MAGUBIKE WARD
MAMBOYA WARD
RUBEHO WARD
CHAGONGWE WARD
CHANJALE WARD
MAGOLE WARD
MSOWERO WARD
LUMBIJI WARD
RUDEWA WARD
KIDETE WARD
KILOSA
CHANZURU WARD
MASANZE WARD
MABWEREBWERE WARD
UMUMA WARD

299

300

- 252 -

Solution no 11


ZOMBO WARD
ULAYA WARD
ULELING'OMBE WARD
KISANGA WARD
MALOLO WARD
MIKUMI WARD
VIDUNDA WARD
KIDODI WARD
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301

302

Solution nº 11

LECTURE Nº XIII

PROCEDURES FOR GENERALIZING THE SCHOOL MAP

by F. Caillods & Ta Ngoc Châu

Although the process of generalization of the school map varies a great deal according to the country, its administrative structure, methods of planning and own administrative history, there are certain common features in the experience of countries which have adopted the school map.

In general, the adoption of the school map implies a significant change in the methods of planning of education and in the implementation process. It requires :

1. the design of the methodology which may be applied to all regions of the country ;
2. the training of technical personnel in charge of the preparation and implementation of the school map ;
3. setting up an administrative structure reponsible for the preparation and implementation of the school map ; this may require a reorganization of services in charge of planning and administering education at central and local levels ;
4. a redistribution of tasks between central, regional and local levels.

I. PREPARATION OF THE METHODOLOGY : THE PILOT EXERCISE

During the course we have discussed the purpose of the school map, we have reviewed some of the principles on which the school map is based, we have presented some of the techniques which may be used in its preparation. These are important components which are useful in the preparation of the methodology. Each country, however, has to design its own methodology which takes into account those characteristics particular to that country. The practical exercise on Kilosa provides an illustration on how this can be done.

The purpose of the pilot exercise is to devise such a methodology which should be applicable to all regions of the country. We are not refering here to the map of specialised education services, such as post-secondary education or technical and vocational education which, for reasons previously stated, have to be prepared at the national level. We are refering specifically to the map of standardised education services which require a uniform method applicable to all areas of the country and which should preferably be under-

The pilot exercise constitutes a research project and a team should be set up in order to undertake the investigation. This team should include specialists of various disciplines (for instance : a geographer, a statistician, an economist, a sociologist, a demographer), together with representatives of the central planning department and of the pilot region selected.

The aims of the pilot exercise are :

- to identify the data available and to indicate where they may be obtained ;
- to identify the additional data and information needed and to prepare the instruments to be used for their collection ;
- to review the existing maps and decide which of them could be used ;
- to make a list of parameters to be taken into consideration when drawing up the school map ;
- to establish a methodology manual which gives in detail the different steps to be taken in the preparation of the school map.

II. THE TRAINING PROGRAMME

It is clear from what we have seen up to now that the preparation of the school map implies the participation of technical personnel both from the central and local levels. It is therefore necessary to provide training programmes for all persons concerned.

It is not without benefit to organise a common course for those in charge of the school map at the local, regional and central levels. This will allow for interaction among the technicians with slightly different concerns and for useful exchange of information on the real problems as they are perceived by the various levels of educational administration and planning.

The content of the training programme, will, of course, vary according to the country and its specific problems. It may, in general, include the following items :

(a) the key issues faced by the country's educational system ;
(b) the reform (if any) presently being contemplated and its implications on the organization of the school network ;
(c) the various steps in the preparation of the school map ;
(d) the way of making a diagnosis at the local level ;
(e) the methods of projection of the demand for places ;

(f) the criteria to be used for the location of schools and the preparation of alternative proposals ;
(g) the methods which can be used for comparing and selecting alternative proposals.

By way of illustration, we are giving below some important features of the training programme as it was organised in Algeria :

The first stage, of course, was the selection of pilot regions and the constitution of a team which would be in charge of the investigation. The selection of this team was done very carefully, because of the key role it was to play both in the investigation undertaken in the pilot region and in the training programme.

The second stage was the detailed administrative organisation of the service in charge of the school map at the national and regional level.

Before even the actual launching of the investigation, a short seminar of two weeks' duration was organised for all technicians concerned at the central and regional levels in order to present the basic principles of the school map and to impress on the participants the importance of the task to be performed.

The investigation was divided into three stages :

- the diagnosis at the local level ;
- the projection of demand for places ;
- the preparation of a proposal.

At the end of the first stage a manual on the diagnosis methods was prepared and a training seminar was organised in order to present the diagnosis as it was undertaken in the pilot region, to indicate the type of statistical data and information to be collected, and to give details on the methodology to be followed when making the diagnosis. The trainees were then requested to select a pilot district in their respective regions and to undertake the same diagnosis. A written report had been prepared by each trainee when the diagnosis had been completed and it was discussed during the next training seminars.

Following the second stage of the investigation, a new training seminar was organised. However, this seminar had two different purposes : the first being to review and evaluate the work done by the various regions in the pilot district - this allowed for detailed discussion on the methodology and its revision, taking into account the specific situations encountered in the different regions. Clear indications were also given to the technicians of the various regions for the revision and the finalization of their report on diagnosis. The second purpose was to present the second stage of the investigation and to define the work to be done by the various regions in its pilot district on this second stage.

Two additional seminars were organised on the same pattern in order to allow for the revision and finalization of the work done by the various regions on the second and third stages of the investigation.

It is not necessary, however, to break the training into three or four stages. Some other countries, such as Thailand, Mexico, Colombia, Nigeria, have preferred to cover all steps at once. It is necessary, however, to plan for various follow-up workshops or seminars to discuss the methodology used and proposalsprepared by the regional team. The task of introducing the school map is a complex one and one cannot expect it to be completed in too short a period (the time required in countries such as Mexico and Algeria has been a minimum of three years).

III. SETTING UP AN ADMINISTRATIVE STRUCTURE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF THE SCHOOL MAP

A unit responsible for the school map should be set up both at central and regional levels :

- The organization of this unit at the central level, its position in the Ministry's organizational chart varies considerably from one country to another.
- Below the central level, such questions as : which administrative level should be responsible for the preparation and implementation of the school map (zone, region, district) ? how many persons should work in this unit ? what should be their tasks and responsibility ? should be discussed. Obviously the answer will vary according to the country, it will also be different according to the educational level.
- Representation and participation of interested parties in decision-making on school map issues.

Insofar as the school map proposals (such as the closing down of schools, the merging with other schools, the extension of existing schools, and the choice of location of new schools) may result in delicate decisions and may have considerable repercussions on local communities, it would be desirable for those groups particularly concerned (local politicians, parent associations, teacher representatives, etc.), to participate in the decision-making process. The extent of participation and the powers given to these school map committees will, of course, depend on the political context and the administrative organization in the country in question.

IV. REDEFINITION OF TASKS BETWEEN CENTRAL, REGIONAL AND LOCAL LEVELS

To what extent do (and will) the regional and local authorities take part in drawing up the plan objectives ? How are schooling needs determined at the local and regional levels ? How are decisions make concerning the allocation of resources to the regional and local levels ?

The introduction of the school map and the decentralization of planning would mean a redistribution of tasks between central and regional levels. The unit at central level would, for example, be mainly responsible for :

- defining the overall objectives ;
- regionalizing the objectives ;
- defining criteria ;
- control.

The experience of various countries in this respect will be discussed.

PART III

NATIONAL PRESENTATIONS

BRIEF NOTES ON THE ETHIOPIAN EDUCATION SYSTEM

by

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BRIEF NOTES ON THE ETHIOPIAN EDUCATION SYSTEM

A SHORT INTRODUCTION

Ethiopia has over 30 million people and includes a complex of nationalities, cultures and languages. Experts speak of possibly one hundred separate languages in this vast country.

Ethiopia is a large country of about one and a quater million square kilometers, stretching over 15 degree of latitude within the tropics, but her climate is also influenced by the great extremes of atitude.

For administrative purposes, the country is divided into 14 major regions with an additional Region comprising the area of the capital, Addis Ababa, where some 1.3 million people live. Each Region is divided into provinces, known as 'Awrajas' of which there are 106, and the Awrajas, which are all very large areas, are again divided into Districts or 'Weredas' - and below these are the administrative units - the Rural Peasant Associations (of which there are now over 27,000) and the Urban Dwellers Associations, or 'Kebeles', created after the removal of the autocriatic old feudal regime im 1974.

DISPARITIES OF EDUCATIONAL SERVICES IN PRE-REVOLUTIONARY ETHIOPIA

The Ethiopian education system prior to the eruption of the popular revolution, was serving a small sector of the population of the estimated 27 million population in 1974, 90% lived in rural areas but included only 50% of the then enrolment, while the 10% living in the urban sector benefitted from the remaining 50% of educational opportunity.

The inequalities in the distribution of educational opportunity varied considerably between regions. At the primary level regional participation rate varied from 13% to 78%. The disparities were even greater at the secondary level. Three regions, which had 27% of the secondary school age group, accounted for 55% of total secondary school enrolment. The favoured regions were those with largest urban population.

Further inequalities were shown by the results of the 12th grade examination and university registrations, 69% of Ethiopian School Leaving Certificate (ESLC) passes and 62.58% of the entrants to the University were from three regions only, again indicating a bias towards urban centres.

Educational facilities were very largely concentrated in urban areas where participation rates in conventional school facilities were already high.

1. THE OBJECTIVES OF ETHIOPIAN EDUCATION

1.1 The Ministry of Education has been engaged since the Revolution of 1974, in a process of reform of the content and structure of education in Socialist Ethiopia to bring an early eradication of the elitist system inherited from the previous feudobourgeois regime and to move towards a through democratisation of education in Ethiopia.

1.2 National directives require that the education system be based in the teachings of Marxism-Leninism which will:-

- (a) Seek the maximum physical, cultural and intellectual development of the Ethiopian people.
- (b) Require that science and technology, progressive culture, aesthetics and other basic knowledge are integrated in a process which unites learning and work.

1.3 Thus, educational objectives can be summarised as:

- education for socialist consciousness
- education for production
- education for science and research

1.4 The development of national principles, aims, objectives and priorities for education has its origin in the Programme of the National Democratic Revolution of Ethiopia, published in April 1976 which states that:

> "There will be an educational programme that will provide free education, step by step, to the broad masses. Such a programme will aim at intensifying the struggle against feudalism, imperialism and bureaucratic capitalism. All necessary measures to eliminate illiteracy will be undertaken. All necessary encouragement will be given for the development of science, technology, the arts and literature. All the necessary effort will be made to free the diversified cultures of imperialist cultural domination, from their own reactionary characteristics. Opportunities will be provided to allow them to develop, advance and grow with the aid of modern means and resources."

1.5 Thus, the general principles for the reform of education and the objectives which have been formulated require movement towards:

(i) the participation of the whole community in the education process,

(ii) the initiation of programmes offering various opportunities for lifelong education,

(iii) the definition of priorities which will create universal access to general education for the masses in programmes for adults and children of school age in response to basic human rights, and the definition of socialist procedures which will ensure that other education programmes related to specific education and training for national needs give priority to the sons and daughters of workers and peasants,

(iv) the decentralisation of the management of all educational operations, employing the processes of democratic centralism which balance and intergrate the requirements of national policies and directives with the specific needs of regions and localities at the same time maintaining effective control over the education system,

(v) the development of close links between educational institutions and the communities which they serve, as well as the process of learning and work through such mechanisms as Labour Education.

1.6 The end objective is a productive society build on socialist attitudes and fully prepared for the building of socialism. The development of creative scientific and technical abilities is emphasised so that the masses can play a positive and productive role in production and in the construction of a socialist way of life.

1.7 The priorities established for the development of education can be summarised as follows:

- the elimination of illiteracy by the year 1987*, the universalisation of entry to grade 1 of the regular school by 1987 and the universalisation of primary education by 1992,
- the polytechnicisation of the school system and the strengthening of science and technology in non-formal education operations,
- the development of mechanisms which will ensure that education will have an immediate and continuous impact on the development programme and on the life of people, coupled with measures which relate school more closely to the world of work,
- the expansion of training facilities for middle-level technical and scientific manpower and the equitable distribution of such facilities,

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* When the National Literacy Campaign in Ethiopia was launched in 1979, the illiteracy rate was 93%, after the Campaign by mid - 1981, the rate of illiteracy dropped down to 65%. Currently the Campaign is being conducted in 15 major nationality languages covering 90% of the entire population.

- the democratization of all levels of education by ensuring that all localities have equal access to all levels of education.
- the maintenance of quality during the process of growth through appropriate systems of evaluation and training.
- the development of a system of educational services for adults in all communities based on the universalisation of literacy, and for the purposes of continuing education.

2. ORGANISATION OF THE EDUCATION SYSTEM

2.1 Education in Ethiopia is free and is provided from pre-school* level (children aged 4 - 6), through primary school (grade 1-6 for children aged 7-12), secondary school in two levels of Junior Secondary (grades 7 & 8 and Senior Secondary school grades 9 - 12), for students aged 13-18, the Third Level Education in Diploma (2 years), Degree (4 year) and Post-Graduate Courses.

There are also specialised Technical/Vocational schools at secondary level. Special schools for the handicapped are operated at primary and secondary levels.

2.2 The Education system includes a non-forma sector embracing Literacy Instruction for the 8-50 age-group; Basic Education Programmes at Community Level to initiate a range of educational activities and Adult Education programmes delivered through Community Skill Training Centres, the Educational Radio system, correspondence Education and extension and night school operations.

3. ALLOCATION OF RESOURCES

Prior to 1974, the major constraints which hindered the development of education were:

- Lack of relevant curriculum
- Acute shortage of trained teachers
- Lack of school building and equipment
- Existence of highly centralized system of education.

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*Mainly handled by the community (Peasant and Urban Dwellers Associations).

The above problems, however, have been tackled by the reforms taken by the revolutionary government.

The most important ones were the rural land reform (which was proclaimed in March 1975 and provided for Public ownership of all rural lands) and the Urban land reform (which took place in August 1975 whereby all urban lands and extra houses became government property). Following this, the government in December 1975 established peasant associations, and in October 1976 formed the urban dwellers associations and muncipalities in order to ensure the implementation of the above mentioned reforms.

The Ministry of Education had reacted to these forms. It formulated educational guidelines and adopted new educational policies in line with the socialist principles. As a result of the new education guidelines the curriculum which was basically elitist has been reformed on the basis of the needs of the broad masses. Short term teacher training programmes have been introduced to orient teachers with the new political objectives and to up grade and train them to teach the new curriculum particularly in the primary schools.

Peasants and urban dwellers association have been initiated to participate in the expansion and administration of education. Primary Schools, Community skills training centers, secondary school classrooms and offices are constructed by the participation of the Community. To implement the new education guidelines a certain degree of decentralization has been made at the regional and province levels by the formation of school management committees. This decentralisation of administration is intended to encourage, parents and community to share the responsibility of the education of children and to make them more concerned about the expansion of education in general.

3.1 ALLOCATION OF BUILDINGS

Government Building Programme

(a) Primary Schools (1-6) are mainly build by the Community (Peasant and Urban dwellers associations). The government provides technical services. In some cases, however, the government builds schools to areas having the following conditions;

- Areas without educational opportunities at the rate of one primary school for three peasant associations.

- New settlement areas.
- Economically and socially backward areas.

(b) Junior Secondary Schools (7-8).

The plan is to have at least one junior high school in every sub-district. Based on this the government builds schools in areas mutually agreed by the Community and Ministry Officials. The Ministry has set the following criteria for site selection:

- Minimum of 40 students.
- Central location with respect to feeder (primary)schools.
- district without a junior high school.

According to the quota* of regions, the Planning Office of the Ministry of Education, every year sends tentative site list of junior secondary schools to the regions. The same list goes down to provinces for discussion. The Planning and Development Campaign Committee of a province for a satisfactory reason may make changes in the first. The list goes back to the ministry and later on construction of school in agreed sites start.

(c) Senior Secondary Schools (9-12)

The government builds schools so as to have one senior secondary school in every province. The procedures followed in site selection are mostly similar to those mentioned in (b) above.

PUBLIC BUILDING PROGRAMME

(a) Pre-School Units: These are a new features of the system catering for children aged 4-6 and are now being established in projects intiated by popular associations namely the urban dwellers and peasant associations. Here the government's (MOE) share is to give training to pre-school teachers. After complition of training they go to their respective areas where they will be assigned and paid by the community.

(b) Primary Schools - (1-6)

According the yearly quota given by the Ministry of Education (MOE) the local community mobilize resources to construct buildings and buy furniture and equipment. Here the ministry's share will be to supply teachers and administrative personnel.

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*Quota for regions with low participation rate is more than other regions with higher participation rate.

(c) Junior Secondary Schools (7-8)

The quota given by MOE to have one junior to every sub-district is sometimes violated, this is because inhabitants of a certain area may fulfil the requirements to open an additional junior high school. Here again MOE supplies the staff needed to run a school.

(d) Senior Secondary Schools (9-12)

Because of high cost of putting up such institution are usually built by the government. Very rarely, however areas with more people and resources build, equip and furnish schools. After MOE officials agree that all the necessary materials that make a senior secondary school is met, then MOE supplies teaching staff and administrative personnel.

The major elements in the non-formal delivery system are:

(a) Community Skill Training Centres (CSTC)
Offer basic education and literacy courses for adults as well as specific skill up grading for artisians. The first phase of development is to provide one CSTC to every district (Wereda). In 1981 a total of 296 CSTC's were operational and it is planned the complete the Wereda Pattern by 1983.

(b) The Awraja (Province) Pedagogical Center (APC)

- Ninty seven of the total 106 provinces are now fully operational. It is seen as a mechanism for local curriculum development and as a meeting place for teachers, school directors and the representatives of mass organizations for this purpose. The APC offers training for teachers, encourages the for-mation of branch APC's in schools. It also carries out research relevant to local curriculum development and acts as a center from which new ideas and information can be transmitted to schools.

OTHER STRUCTURES

(a) The Regional Education Radio System

There are 11 one KW transmitters, sited so as to achieve coverage of over 80% to 90% of the population. The stations provide instruction in basic subjects for primary and secondary schools, as well as for the adult education programme.

(b) Primary Teacher Training Institutes

The institutes are planned on the scale of one for each administrative region. In 1982 ten institutions are operational. The Institutions provide a one year intensive primary teacher training course for high school graduates. The total yearly out put reaches 550 x 10 = 5,500 teachers. Would be teachers for high schools receive training from colleges. The training period lasts two and four years for junior and senior secondary school teachers respectively. At the sametime there is in-service training programme for the existing teaching force.

3.2 TEACHERS ALLOCATION

The factors indicated below are considered in assigning teachers to the regions.

(a) Making note of the demand of the region along with the planned education growth,

(b) Considering the existing pupil-teacher ratio*

(c) Schools to be opened for the coming academic year will have six teachers for 300 students (for primary schools 1-6).

(d) Schools to be up graded will be considered for more teachers.

(e) The number of additional students; class rooms, school and and the number of shifts.

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*Primary school 1 teacher for 50 students
Junior sec. school 1 teacher for 40 students
Senior sec. school 1 " " 40 "

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EDUCATIONAL DEVELOPMENT IN SOMALIA

by

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AND SCHOOL MAPPING - ARUSHA, TANZANIA

Basic Date

1. Area - 637000 Sq. Km.
2. Population (estimate 1980) - - - - - - - - - - - - - - - 5,074,000
3. Urban 20%

   Rural 80% of which 60% are nomadic
4. G.D.P. per capita - to be estimates in the range of US$ 100-120
5. Labour fource (1979) - - - - - - - - - - - - - - - - - - - 1565000

   of which Public Sector - - - - - - - - - - - - - - - - - - 75000

   Private non agricultureal - - - - - - - - - - - - - - - - 75000

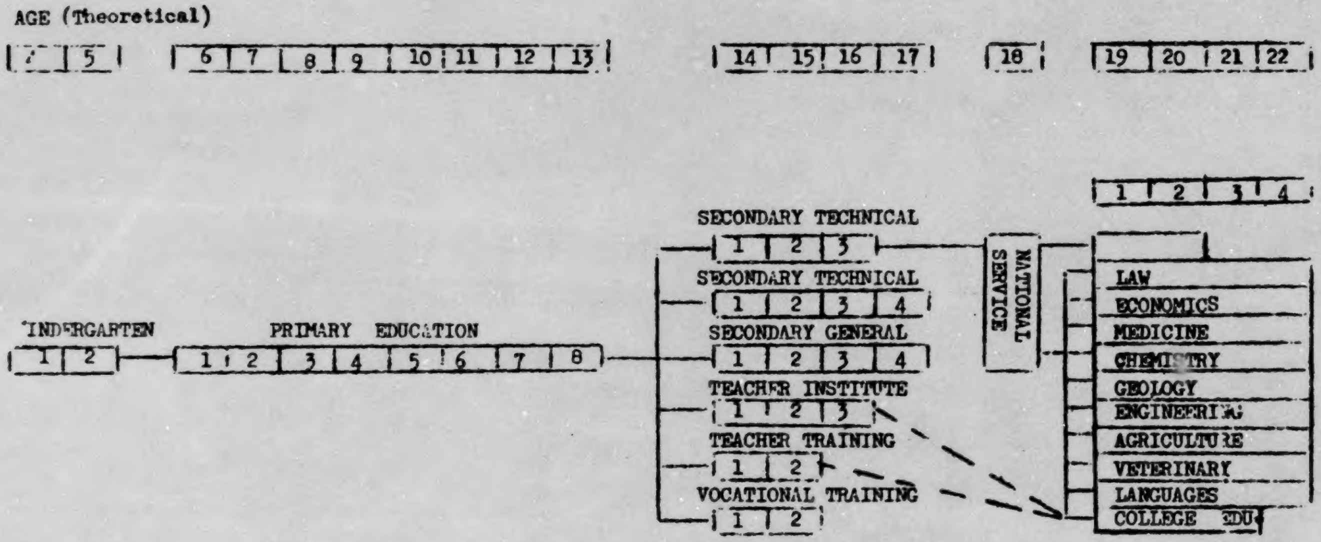
   Private agricultural - - - - - - - - - - - - - - - - - - - 1233000

   Other - 182000

SOMALIA DEMOCRATIC REPUBLIC

MINISTRY OF EDUCATION

STRUCTURE OF THE EDUCATIONAL SYSTEM
1980/81


AGE (Theoretical)
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KINDERGARTEN
1
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PRIMARY EDUCATION
1
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3
4
5
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7
8
SECONDARY TECHNICAL
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2
3
SECONDARY TECHNICAL
1
2
3
4
SECONDARY GENERAL
1
2
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4
TEACHER INSTITUTE
1
2
3
TEACHER TRAINING
1
2
VOCATIONAL TRAINING
1
2
NATIONAL SERVICE
1
2
3
4
LAW
ECONOMICS
MEDICINE
CHEMISTRY
GEOLOGY
ENGINEERING
AGRICULTURE
VETERINARY
LANGUAGES
COLLEGE EDU

HISTORICAL REVIEW

In the year 1960 the two former colonies of British and Italian Somaliland gained their independence and the present day Somalia was born. On independence Somalia inherited two very disparate systems of public education. One thing however each had in common. Both were dedicated to the production of an elite, they favoured the few who could pay fees and totally neglected the mass of people for whom fees were an economic impossibility.

In each of the former colonies both the structure of the educational system, and their media of instruction were different. In the north, the former British Somaliland, the duration of the educational system was three years elementary education, followed by four years of intermediate schooling which in turn led to four years of secondary education. The medium of instruction was Arabic in the elementary schools, and English at intermediate and secondary levels.

In the south, the former Italian Somaliland, the educational ladder was quite different. There were five years of elementary education and three years of intermediate schooling, followed by four years of secondary education. In the south the medium of instruction at all levels was Italian.

In their own particular ways each system of schooling was highly academic. The curricula were based on the skills of reading, writing and number, while the social studies or sciences were almost entirely focused upon British or European history and geography. Thus the content of education bore little or no relationship either to the needs of children, as emergent adults, or the needs of the society in which they would take their place. The systems of education were therefore dysfunctional as a mode of production. The schools produced students who may have been fit for further education of this type, but who were often unfit to play and significant role within the community that had provided the service.

In the decade following independence, the Government of the day took a number of steps, firstly to unify each of the schooling systems secondly, to give commonality to curricula, and thirdly to make uniform the media of instruction. The pattern of uniformity adopted, closely followed that of the British model. For example Arabic remained the medium of instruction at elementary level and English was adopted at the higher levels. (Italian survived in private and some public schools and as the university language of instruction).

While unification was in itself a valuable process, it alone did not come to grips with the real problems that confronted education, most notably the use of the mother tongue as the basis of instruction, the renovation of curricula to make the content of education more relevant to the needs of a newly independent nation, and perhaps most importantntly, the need to universalize the schooling process.

Following the October Revolution, new impetus was given education. The new Government gave top priority to reform and renovation, and sought to confront both the problems of quantity and quality with vigor and imagination.

INTRODUCTION OF SOMALI LANGUAGE INTO THE CIVIL SERVICE AND THE SCHOOL SYSTEM

As a necessary and basic step the Government turn its attention to the latinization of the Somali language, a problem that had bedeviled the previous administration and which they had failed to solve. Untiring effort in negotiation, and mass education was rewarded in 1972 with the adoption of a latin script. Thus a very ancient language was given a new and unique form. Immediately the Somali language was introduced into civil service and the school system. For the first time in the history of Somalia primary school children were able to be taught in the language of their mothers knee, the language of their early childhood. School attendance no longer meant a language transformation, and language itself no longer was an impediment to enrolment.

Given the new tool of a written language, the Revolutionary Government set in train the means for its universalization, both within the schools and without. To give the new language commonality a mass literacy campain was organized, and implemented in 1974-75. In the space of some 19 months more than 1.2 million people were taught the skills of reading and writing. The success of the campaign can be evidenced in the literacy rates. When the Revolutionary Government came to power in 1969 some 90 percent of the population were illiterate. The mass literacy campaign reduced this rate by over 40 percent.

Eager to lay the foundations of more widespread and permanent literacy, and for reasons which were both socially and economically cogent the Revolutionary Government, concurrently introduced a policy of universal, free and compulsory primary education. In 1975 the old division between elementary and intermediate levels of education was transformed into a unified primary education system of six years duration. Free and universal schooling at a primary level was not in any way disadvantaged by this reduction in time allocation. Since it was possible to provide instruction in the childs mother tongue, and since the content (as we shall later see) was oriented towards the childs immediate environment, the pupil could cover, as much, if not more ground than previously when so much time was lost in teaching a foreign language in order to provide instruction. Simultaneously the school entry age was lowered to age six, thus paving the way for an additional increment to schooling should this be deemed desireable. In 1977 the Revolutionary Government took steps in just this fashion, and elongated the primary from a six to an eight year system.

The success of the 1975 policy of free, universal and compulsory primary education can be read in the enrolment figures of the period. In the years immediately prior to the new policy annual intakes of primary school pupils were 20,000 (1972-3) and 24,000 (1973-4) respectively. In the academic year 1975-76 the first year of free primary education the new intake was 134,000. This of course included many children in the older age brackets who had not previously beed enrolled. While in more recent years drought and famine have influenced new intakes, it is hoped that by the academic year 1985-86 the annual enrolment intake will have stabalized at approximately 100,000.

The table below indicates the growth that occured:

Pupil Enrollment and Teaching fource by level of education 1969/70 - 1979/80.

Primary	1969/70	1979/80	% Increase
1. Schools	292	1509	417
2. Classes	1427	7219	406
3. Enrolment	48609	271129	458
4. Teachers	1542	8695	464
Secondary			
1. Schools	26	55	112
2. Classes	196	560	186
3. Enrolment	6412	24373	329
4. Teachers	335	1438	329

National budjet and Educational Expenditure (in 000 of Shs. 50)

1. National budget	401,400	(a)	1,956,120	487
2. Educational Exp.	26,337	(x)	169,384	543

(a) Includes ordinary and development (Domestic) of the Central Government Expenditure.

(x) Higher Education is not included.

N.B. External loans, grant and aid are not included

Primary output and intake into Form I Secondary schools 1975/76 - 1980/81

Acc. Year	Primary output	Intake Form I Secondary	%
		-	-
1975/76	7374	6457	87.6
1976/77	7414	6633	89.5
1977/78	9656	8658	89.7
1978/79	11053	10537	95.3
1979/80	27868	26276	94.3
1980/81	-	-	-

TEACHER TRAINING AND SCHOOL BUILDING

The dramatic increase in primary school enrolments which occurred folowing the implementation on the new policy, put immense pressure upon the educational system in terms of manpower and services. The Revolutionary Government through its Ministry of Education was quick to react. To solve the manpower problem a new teacher training centre was created in 1975 (Halane), and the period of training was reorganised on a one year basis, now augmented by summer courses and seminars, to extend the training base. In this fashion some 3,000 teacher trainees are produced annually. To date this supply has kept pace with demand. In anticipation of the likely increase in new enrolments which the new policy of free primary education might entail, and indeed in order to handle the facilities which the mass literacy campaign required, the Revolutionary Government began in the early 70s a self-help school building programme disigned to encourage local communities to construct and extend primary schools. This self-help programme, based upon the concepts of self reliance and self sufficiency was responsible for the erection of some 4,000 new classrooms. Some 60 percent of the cost of these classrooms was borne by the community, the remaining 40 percent coming in subsidy from the Ministry of Education. In this way the classroom "crisis" was anticipated and overcome.

As the new intakes settle into a more ordered format, there is opportunity to plan ahead more consistently. A standard and regular school building programme is presently underway, with rapid expansion of secondary facilities to cope with the anticipated enrolment boom, a consequence of the earlier rapid increase in primary school enrolments. This year the Ministry of Education will convert Halane, back to a two year programme of teacher training.

CURRICULUM DEVELOPMENT

A more persistent problem, simply because of the long lead time required has been the preparation, collation, and editing of new text books in the Somali language. This task has been made the more difficult for at the same time the new texts had to be written to reflect new aims and objectives in curriculum. Primary syllabus revisions took place in 1972 and 1974, for the purpose of preparing the Somali child for life within his or her environment. For the first time emphasis was laid not merely on the skill areas, but on a history, social science, civics and government, that were meaningful to the child and his or her society both in terms of community culture and welfare. Again for the first time emphasis was placed on the sciences so that children might not only learn to be, but also learn to do. This more practical aspect of schooling was designed to equip the child with the scientific bases on which social change could be achieved. Thus the foundations of a more vocationally oriented education were laid.

In order to give continuity to the curriculum changes at primary level, a new policy of secondary streaming has been planned for the present academic year. It was hoped that approximately 24 percent of primary school leavers would enter the general stream of secondary education, while 14 percent would opt for a more specialized technical education. Thus under this scheme the bulk of primary school leavers would be drafted (42 percent) into vocational stoams and schools. While a beginning to streaming has been achieved the allocation of the new secondary intake in the above proportions has not been possible this year due to the financial constraints that have operated (the nation has had to cope with a flood of refugees), and the delays that have occurred in the construction of specialized facilities especially in the technical and vocational areas.

The Revolutionary Government of Somalia has since its inception in 1969, placed great emphasis upon adult and non formal channels of education. This emphasis is understandable in the light of the need to rapidly educate industrial and agricultural workers to achieve increased production, and to educate other members of the society, in those communal tasks that might improve their quality of life.
Seen in these terms adult education in all its various forms can yield a rapid return to educational investment. A number of non-formal educational programmes are already in operation. These are generally based on curricula that have been developed to meet the problems and needs of the Somali community. For example in order to make literacy

more functional reading materials have been produced that will assist adults to obtain a better understanding of their occupational activities. Rural educational centres have been established particularly to assist women in the field of domestic science. Rural and urban programmes of education have also been initiated to help women better utilize their skills and local materials, in the process of developing income generating activities.

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SOME FEATURES OF THE EDUCATION SYSTEM AND TRANSFORMATION SINCE INDEPENDENCE IN ZIMBABWE

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SOME FEATURES OF THE EDUCATION SYSTEM AND TRANSFORMATION SINCE INDEPENDENCE IN ZIMBABWE

INTRODUCTION

Zimbabwe attained political Independence on 18 April, 1980 after a protracted armed struggle aimed at smashing white supremacy and racial segregation. It is necessary to give a historical perpective in order to understand the present state of the education system. The hitherto existing system of education in Zimbabwe which evolved as an integral part of White settler society within the growth of capitalist production, has left its distorted effect on the structure of education system; the supply of manpower needs and the ideological outlook of its participants.

THE PAST

The poligy of segregation or separate development created and perpetuated inequality. Dualism permeated the political, economic and social structures of the country. A dualistic system of education evolved - one inferior system for the African and the other first class system for the Whites. Each system though under one Minister was administered separately; each one with its own Secretary for Education, Deputy Secretary, Chief Education Officers, Regional Directors, a team of Education Officers at both Head office and Regional level. Each system had its own teaching staff and no African teacher or African pupil was allowed in the white Government schools. Amongst the ugly features of this system were:

(i) The gross inequality between teachers' salaries even with the same qualifications.

(ii) A pyramidal structure of education with a broad base and a very narrow apex for the African system in sharp contrast to the universal education for the Whites.

(iii) The High Drop-out rate in both Primary and Secondary cycles for the Africans compared to the very high promotion rates for the Whites. There was so much educational wastage and inefficiency in the African system. All material and human resources of the country were geared to provide a first class educational system for the European community while Africans were largely left to the progressively diminishing resources of the Missionaries and Communal areas.

COHORT SURVIVAL RATES - 1975

AFRICAN SYSTEM	WHITE SYSTEM
Those who entered Grade I, 55% got to Grade 7; 11% to Form I and 6% to Form IV. A very low transition rate!	Of those who entered Grade I, 88% got to Grade 7; 89% proceeded to Form I and 80% to Form IV.

There was no drop-out in the White system. The discrepancy in the statistics is due to migration phenomenon.

(iv) There was gross inequality in the expenditure on black and white education. The unit cost ratio was 1:13. Thus for every Zimbabwean dollar spent on an African child, 13 dollars were spent on a European child. This led to a number of things:

(a) Lack of access to education for the majority of the population.

(b) The difference in the quality of education between the two systems. The white system had a rich varied curriculum; well equipped schools with excellent facilities; spacious grounds, a variety of sporting facilities well trained teachers, low teacher - pupil ratio (1:15) and a low teaching load (20 periods a week). On the other hand, the African schools were poorly equipped with limited space/grounds, rudimentary sporting facilities; 9% untrained teachers at Primary level and 8% untrained teachers at secondary level; high teacher - pupil ratio (1:36). The curriculum for the bright African pupils was academic and designed to lead on to University, but only 0.1% of those who entered Grade I got to University. This system of education was so designed to subjugate the African, to perpetuate white setler interests and to remove any fair competition between the races.

EDUCATION SCENARIO

PRIMARY: In 1979, 819586 were enrolled and this represented a gross enrolment rate of 43% of the school age population in that year.

SECONDARY: In 1979 only 66215 were enrolled at secondary level. Infact only 22% entered Form I.

THE TEACHING FORCE

PRIMARY - 18483 teachers and 9% untrained
SECONDARY - 3534 " " 8% "
TEACHER EDUCATION - 258 lecturers and 5% untrained.

EDUCATIONAL INSTITUTIONS

The total number of registered schools was:

PRIMARY - 2401
SECONDARY - 177
TEACHER'COLLEGES - 8

THE PRESENT - TRANSFORMATION SINCE INDEPENDENCE

The education system which Zimbabwe inherited was one of the lynchpins in establishing and maintaining the inequality which characterised every aspect of Rhodesian Society. With Independence such institutions will be transformed and education will then become a true service of the masses and not merely a means of mental colonisation. But the inherited structures and the constitution make it impossible to bring about nation wide changes immediately.

1. The Government of Zimbabwe recognizes Primary education as the right of every Zimbabwean. Therefore the Government has completely reversed the previous oppressive system by providing FREE PRIMARY EDUCATION TO ALL childeren of school going age.

2. The first two years of Independence have witnessed a phenomenal quantitative change in enrolment.

   PRIMARY LEVEL - 1979 Gross enrolment ratio was 43% and in 1981 it rose to 91%.

   SECONDARY LEVEL - The Government of Zimbabwe recognizes the need to provide secondary education to everyone not only for the benefit of the individual but also inorder to develop Zimbabwe. The Government has expanded secondary education by 300% within one year. 442 new rural secondary schools were established. While in 1979 only 22% of Grade 7s were allowed to proceed to Form I, 85% proceeded to Form I in 1981! Infact the 1981 Form I intake quadrupped that of 1979.

3. We are working towards a unitary system of education. The dual system of education has been smashed. There are African pupils and African teachers in the former European schools (Group A schools). Pupils are no longer segregated. Conditions of service are now the same. There is no longer any salary disparity between African and European teachers.

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4. The rapid expansion of new rural secondary schools demonstrates the successful partnership between the local people (making bricks, hiring builders, providing labour and being involved in decision making) and government providing a building grant. In the first two years of independence it has been extremely difficult to plan the location of the new rural secondary schools, and areas which were more vaciferous got more schools. This has created a problem of certain schools not properly located.

5. The Ministry of Education and Culture. It was very appropriate for the leaders in Government to add the "culture" component to what used to be "the Ministry of Education". Culture and Education are like two sides of the same coin. Culture as "a peoples' way of life" gives the people of the new nation, individually and collectively their self realization, self identity and authenticity. Culture was not only untaught in colonial schools, but was despired and derogated to the realms of the primitive and uncivilized. The Culture Division of the Ministry has established Community Arts Centres and School cultural programmes. Cultural exchange visits have been carried out with many countries. Several cultural festivals have been held in different parts of the country and on State visits.

6. The Division of Planning in the Ministry of Education and Culture, though a small team and highly centralised is forging ahead in Planning educational programs and in ensuring that schools are properly located. The Planning team is presently undertaking an education sector assessment which is a Pilot study before embarking on the comprehensive education sector survey later this year. This is designed to investigate the present satus of education in Zimbabwe and to map out an education plan for the next 10 years.

7. The Education System is still centralised though a vigorous attempt is being made to decentralise the system. Already there are six Education regions and each region is headed by a Regional Director who has a team of Education officers - Primary and those for Secondary schools. Though it is highly desirable to have an Education Planning Officer with his clerical team, a landrover, financial resources and human resource constraints make it difficult at the moment. There is also an urgent need to increase the size of the supportive staff at regional level in order to supervise and guide the teaching - learning process in the many schools which have mushroomed.

8. Government is equalising its financial subsidisation to all schools irrespective of their former classification.

9. All schools follow the same national core curriculum. Qualitative changes have been effected in the following areas as to make the curriculum more relevant and sensitive to the needs of the nation.

   (a) A new African Language syllabus for primary schools has been introduced which will enable SHONA/NDEBELE to be taught in all primary schools. A similar move has been made at Secondary level. This should help to harmonize the different linguistic groups of our nation.

   (b) The Primary Mathematics syllabus has been overhauled to make it applicable to all schools in the country. Before independence, Black and White schools used different syllabuses.

   (c) A new English syllabus is in the process of finalisation.

   (d) The Social Sciences have been made more relevant to Zimbabwes needs. The approach is concentric starting with Zimbabwe, then Africa, the Third World and the rest of the world.

   (e) Environmental Science has been improved by the addition of Agricultural Science to the syllabus.

   (f) The most far-reaching change has been in the field of science teaching in secondary schools. The Introduction of rural secondary schools has created a serious shortage of science laboratories, equipment and trained science teachers. The problem has been successfully tackled by the introduction of ZIM - SCI, an ingenious way of bringing science into schools without a laboratory. This consists of a cupboard which contains all the apparatus and chemicals needed to carry out experiments at Form I and II level. The science kit is accompanied by a well structured pupil and teachers' book so that even a non-science teacher can teach science effectively. The ZIM - SCI kit costs only Z$1500 per school.

   (g) EDUCATION WITH PRODUCTION is a philosophy born out of the experience of the armed struggle. Production should be an integral part of a child's education so that school life and work become one.

This programme is well developed in the model schools i.e. Refugee schools since it is a continuation of the education they had during the war. Starting from 1982 production will be compulsory in all schools. This calls for a curriculum incorporating both theoretical and productive work in all subjects and at all levels. The philosophy behind this is not only to make our schools self reliant but also to ensure that pupils learn skills which will equip them to be productive even when they leave schools. The school should be an agent of change led by a new type of a teacher who identifies himself with the problems in the neighbourhood and works hand in hand with the local community to solve the problems of development. Since production is the key to progress, the school has now embodied productive activities in its curriculum. With more organization and undertaking the principles of education with production or education for self-reliance, our schools could generate a lot of income and this could go a long way in reducing costs.

LANGUAGE

English will continue to be an important national language. At the same time the two major national languages, Shona and Ndebele are being given increased status on the national curriculum. Therefore every Zimbabwean must have a profound knowledge of at least one indigenous language as well as a working knowledge of the other. From Grade I to III language of training is the mother tongue and English is introduced incidentally. At Grade IV the teaching of English is intensified and English is then used as the language of instruction. The position is different in the Group A schools (the former European schools) where English is the language of instruction from Grade I.

CONTROL OF SCHOOLS

Whilst vigorously asserting the need for a unitary system of education as expressed in the equitable distribution of all subsidies and in a unified core curriculum, it is at the same time Government Policy to encourage participation of the parents and the people in the administration and contral of their school.

Every school must have a Parent-Teacher Association for:

(a) Organizing support for learning activity by developing appropriate programmes for educational visits and exchanges.

(b) Organizing programmes relating to school activities.

(c) Raising funds and materials to supplement Government subsidies for capital and reccurent expenditure.

THE CONSTRUCTION OF SCHOOL BUILDINGS

Whether in the urban or in the rural areas, the construction of school buildings will be the responsibility of the parents and of the local authorities. Government will be responsible for the construction of all tertiary education institutions.

DAY SCHOOLS AND BOARDING SCHOOLS

It is Government Policy to encourage the building of day primary and secondary schools inorder to make education available to more people. Boarding schools are more expensive to provide and run.

THE TEACHING FORCE

The quality of the Teaching Force is a crucial factor in influencing the quality of education. It is a truism that no education system can fare well without the devoted service of dedicated and highly qualified teachers. Therefore the Ministry of Education and Culture is placing much emphasis on the training of teachers.

Index of Growth of Educational Institutions since 1979

(1979 BASE YEAR 100)

LEVEL	YEAR	INDEX OF GROWTH
PRIMARY	1981	154
SECONDARY	1981	387
TEACHERS' COLLEGES	1981	150

The table above shows that there has been a rapid increase in the number of educational institutions. The greatest increase has been at secondary level. In 1981, 442 new rural secondary schools were opened. The teaching force has rapidly increased since 1979, and at the same time has lost

National Presentations
Zimbabwe

THE TEACHING FORCE

PRIMARY

	Trained	Untrained	Total	% Untrained
1979	16,825	1,658	18,483	9
1981	22,654	15,119	37,773	40

SECONDARY

	Trained	Untrained	Total	% Untrained
1979	3,258	276	3,534	8
1981	4,608	266	4,874	5

some trained personnel to other sectors of the economy, both private and independence. This is shown by a rapid rise in the proportion of untrained teachers which has been compounded by the steep increases in enrolment figures. The incidence of untrained teachers is particularly high at primary level, but the ZINTEC programme should reduce the situation in the next four to eight years. ZINTEC program combines a radical change in the curriculum and methodology of teacher training. The training programme includes an initial sixteen week training programme at Teachers' Colleges. During this period a student is exposed to all the theory of education that is assential for classroom survival. Micro-teaching sessions introduce the trainee to the class teaching situation.

After the 16th week, the trainees are deployed in schools for a four year period on in-service training. They receive lectures by post, do assignments, get help from field tutors and return to Colleges during some vocations to meet their tutors. Each of the four colleges has a capacity to train 250 students, thus every sixteen weeks the four ZINTEC Colleges produce a thousand teachers, i.e. 3000 teachers a year!

The curriculum of ZINTEC Colleges, emphasizes the importance of productive work as part of the educative process, self reliance and community service. During this period of in-service training the student teacher receives a graduated salary.

PROBLEMS

It would be grossly unfair to say that in its endeavour to transform the education system Zimbabwe has not experienced formidable problems. Briefly the problems include:

1. Problems connected with rapid expansion of education in two years creating problems of Inadequate classrooms, Equipment and Textbooks. This has necessitated most schools to utilise "HOT SEATING" or Double Shifts. Problems of shortage of trained teachers especially at Primary level. But this should be well under control in four to eight years due to the utilization of ZINTEC program. Zintec techniques will also be used starting from this

year for student teachers at Teacher Training Colleges for secondary schools.

2. In the rural areas, new rural secondary schools have mushroomed without any coordinated planning. Therefore some areas are better served than others. One feature of the Education Policy of Zimbabwe is that Education must be science and technological biased. Urban schools are better placed to implement this philosophy. As for rural secondary schools - with no laboratories, no trained science teachers, no electricity; the Ministry of Education and Culture in collaboration with the Science Centre of the University of Zimbabwe has devised a new science kit called ZIMSCIENCE - which is an ingenious way of teaching science to such schools.

3. Problems of logistics and supply to cater for the needs of all schools.

4. Curriculum Problem - Need to work for a local oriented curriculam, but examination system is still foreign based. Time dimension is critical factor. Need for new learning material and need to transform the examination system to one which is Zimbabwe based.

5. Other constraints include [illegible] financial resources and High fertility (50% of pop. under 15 years of age and a fast rising school age population).

6. Non-formal Education - Before independence there was no active governmental involvement, but everything left to private organization i.e. lack of concerted effort to improve the lot of the masses. The new government is determined to devote more time and resources to Non-formal Education. About 3 million Zimbabweans are illiterate or semi-illiterate. Another 1.2 million have low educational qualifications. A big exercise on literacy campaign will be launched this year.

* * *

THE ZANZIBAR EDUCATION SYSTEM

by

A.Y. Mzee
EDUCATION OFFICER
MINISTRY OF EDUCATION

INTENSIVE COURSE ON MICRO-PLANNING
AND SCHOOL MAPPING - ARUSHA, TANZANIA

THE ZANZIBAR EDUCATION SYSTEM

INTRODUCTION

Zanzibar lies off the coast of Tanzania Mainland and she forms the second part of the United Republic of Tanzania. The total area of the two islands (Unguja and Pemba together form Zanzibar) is 2,332 square kilometres of which 1464 square kilometres are for Unguja and the remaining 868 sq. km. are for Pemba Island.

The climate is equatorial and the sun is overhead in March and October. The main rainy season is during the months of April, May, June and October. This is the cold season. The hot season starts at the end of December and goes up to March.

Zanzibar has 5 regions (3 in Unguja and 2 in Pemba) and 10 districts, (each region has 2 districts). The distribution of population through out the islands is as shown in the table below:-

TABLE 1 ZANZIBAR ISLANDS POPULATION CENSUS, 1978 POPULATION BY SEX AND POPULATION DENSITY BY DISTRICT

	Region and District	Area sq.km.	Population (Number)			Density per sq. km.
			Male	Female	Total	
I	Unguja Island	1464	136908	136457	273365	187
	(a) Urban West Region	224	71623	71993	143616	641
	Urban district	16	53672	56997	110669	6917
	West district	208	17951	14996	32947	158
	(b) South Region	814	26667	25658	52325	64
	South district	361	23462	11274	21943	61
	Central district	453	15998	14384	30382	67
	(c) North Region	426	38618	38806	77424	182
	North 'A' district	211	23462	24684	48146	228
	North 'B' district	215	15156	14122	29278	136
II	Pemba Island	868	102023	103847	205870	23
	(a) North Region	459	52787	53513	106300	23
	West district	218	29239	29684	58923	27
	Micheweni district	241	23548	23829	[illegible]	[illegible]
	(b) South Region	409	49236	50334	99570	243
	Chake Chake district	202	23658	24101	47759	236
	Mkoani district	207	25578	26233	51811	250

Source: Department of Statistics. Planning Commission, Zanzibar.

TABLE II POPULATION OF TOWNS IN CENSUS YEARS 1967 AND 1978

TOWN	CENSUS 1967	1978	ANNUAL GROWTH RATE %
ZANZIBAR	68490	110669	5.6
WETE	8469	12874	4.7
CHAKE CHAKE	4868	9643	8.9
MKOANI	1714	5678	21.0
TOTAL	83541	138864	5.9

Source: Department of Statistics, Planning Commission, Zanzibar.

The 1978 population census showed that Zanzibar had a population of 479,235 of which 273,365 or 57% of the total population was for Unguja Island. The same census results showed that sex ratio was 99.4 men per 100 women.

Agriculture is the principal economic activity of Zanzibar. The cash crops are grown entirely for export and manufacture. The main cash crops are cloves, coconuts and chillies. Cloves earn the Zanzibar government about 90% of the foreign exchange. The main food crops are maize, millet, cassava, rice, bananas and sugarcane.

THE EDUCATION SYSTEM

Historical background:

Prior to the Zanzibar Revolution of 12th January 1964, the education provided by the colonialists was based on race and colour. This was effected by the presence of racial schools such as the Comorian School and the Bohora School. Very few chances were given to Africans who even then, did not reach anywhere educationally due to large fees charged by the colonial government. The education provided by the colonialists was both inadequate and inappropriate for Africans.

Just after the January 1964 revolution, education was declared free and all private schools were abolished and converted to public schools - Education was declared free on 23rd September 1964. After the Afro-Shirazi Government (Afro-Shirazi was the ruling party from 1964 - February 1977 when C.C.M. was born) announcement of free education for all workers and peasants of Zanzibar, new schools were opened both in rural and urban areas. Every student had the right to get primary school education as well as secondary education.

Major changes in the curriculum, organisationand administration of education institutions have been introduced so that education for the students serves the purposes of Tanzania and encourages the growth of socialist values.

In order to bring about rapid development in the fields of education, the Ministry of Education in Zanzibar is divided into the following Directorates:-

1. The Directorate of Planning and Administration which is responsible for the planning of all educational activities in Zanzibar. As far as education is concerned, its planning is centralized and carried out by this Directorate.
2. The Directorate of Child Care and Rehabilitation Centres which is responsible for the pre-school age children in the nursery schools and day-care centres. This Directorate also deals with the Rehabilitation centres.
3. The Directorate of Primary and Middle School Education which is responsible for primary education (Std. I - VIII), and secondary education (Form I - IV).
4. The Directorate of Higher and Technical Education which deals with Advanced level secondary education (Form V - VI), post-secondary education, teacher education, technical education and biased secondary schools.
5. The Directorate of Adult Education which is responsible for all adult education activities in Zanzibar.
6. The Institute of Kiswahili and Foreign Languages which is responsible for the promotion of Kiswahili and other languages. It offers certificates and diplomas in Kiswahili, English, French and Arabic.

PRIMARY EDUCATION

As stated earlier, primary education is supervised by the Directorate of Primary and Middle Schools education. The minimum entry age is six years and a pupil takes a minimum of eight years to complete his primary education.

As far as Universal Primary Education (UPE) is concerned, the Government has succeeded in providing education opportunities to all children who have reached the age of enrolment. In order to improve the quality of primary education, the classes are grouped according to sections as indicated below:-

SECTION I - Std. I - III
SECTION II - Std. IV - VI
SECTION III - Std. VII - VIII

Each section is led by the section leader. In section I, an Integration System of teaching is used where emphasis is put on the 3R's. No subject wise teaching is done at this stage, but all subjects are integrated together and pupils learn them as if they are studying Kiswahili. Exceptions to this rule are Arabic and English (English is usually started in Std. II). Subjectwise approach of teaching starts in section II onwards. To transit from one section to another, a common examination is done at the end of each section (i.e. Std. III, Std. VI and Std. VIII), and those pupils who reach the required standard proceed to the next section and the most backward children are given opportunity to repeat. Unless otherwise necessary, no repetition is allowed between classes which are in the same section. The medium of instruction used at primary level is Kiswahili. No pupil is dropped out because of his backwardness or dullness. The common examinations also help the evaluators to compare the standards of various schools throughout the country.

Problems facing Primary Education in Zanzibar:

1. Although the government has been able to provide places for every child who has been registered to enter standard one, the enrolment ratio is not satisfactory. For example, in 1981, 21,733 children were expected to be registered for Std. I but only 11,129 were enrolled. The enrollment ration is about 51.2%. In certain areas in Zanzibar, parents are unwilling to send their children to school.

2. Due to the rapid expansion of schools, the government was forced to recruit ex-Form III and Form IV leavers as teachers without undergoing training. This has resulted in having quite a large number of untrained teachers. For instance, out of 3226 teachers who teach from Std. I to F IV, 1769 teachers are untrained, which is about 54.8%. Since almost all schools in Zanzibar start with Std. I and end with F III or F IV, the number of qualified teachers in the primary section is forced to teach to the secondary level as the secondary level has an acute shortage of qualified teachers. This creates acute shortages at the primary level. However, in section I, it is ensured that the teachers are trained and experienced, except on very few cases where competent Ex-F III untrained teachers fill in the gaps.

3. The development of primary education is also very much hindered by the lack of enough teaching materials, sitting places and permanent buildings. Of course these problems are due to financial constraints.

SECONDARY EDUCATION

As far as secondary education is concerned, the government has achieved to provide 3 years of universal secondary education (U.S.E). The ultimate goal of the government is to provide U.S.E. to all pupils for four years of secondary education. At present, out of 129 existing schools, 96 are secondary schools out of which 87 terminate at Form III and 9 provide F IV education. There is direct promotion from primary to secondary education.

There is a common examination which is done at Std. VIII. The purpose of this examination is two-folds:-

(i) to evaluate the standard of primary education throughout Zanzibar so that comperison and contrast may be done among the regions, districts and the schools,

(ii) to select the best students to be enrolled in biased secondary schools. The present biased schools are as follows:

1. Lumumba College (Fisheried & Marine)
2. Fidel Castro College (Agriculture)
3. Mikunguni Trade School (Technical)
4. Commercial School
5. College of Islamic Studies.

Selection to Form 4 is based upon the National Examination which is done by all Form III students. The selection is done on merit-system. Most of the secondary schools are located in urban areas and boarding facilities are provided to those who come from rural areas or those students who travel from Pemba to Unguja for Form IV or biased education and vice vesa. The number of candidates who sat the F III national examination in different years and those who were selected to continue to Form IV is shown in the table below:

TABLE III FORM III EXAMINATIONS

YEAR	CANDIDATES			PASSED		TOTAL
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	
1975	1908	1238	3146	315	165	480
1976	2207	1577	3784	440	177	617
1977	2415	1767	4182	636	274	910
1978	2571	1975	4446	886	399	1285
1979	2294	1757	4051	838	424	1282
1981	-	-	3913		-	1440

Source: Ministry of Education, Zanzibar.

The number of pupils selected to join the biased schools in different years is shown in the table bellow:-

YEAR	LUMUMBA (MARINE)		F/CASTRO(AGRICULTURE)		MIKUNGUNI(TECH-)		ISLAMIC ST-	
	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS	BOYS	GIRLS
1977	39	-	56	24	-	-	-	-
1978	28	12	57	23	31	9	34	6
1979	29	11	64	16	31	9	33	7

Source: Ministry of Education, Zanzibar.

In their fourth year of secondary education, students sit for their Tanzania National Examination organized by the Examination Council of Tanzania. Those who meet the required qualifications are selected to join Form V, Full Technician Certificate courses, Institute of Kiswahili/ Foreign Languages and Teachers' Training College. After completing the advanced level secondary education, the students sit for their final examinations conducted by the National Examination Council of Tanzania. The students are then either chosed for various post-secondary courses or are absorbed by government ministries and parastatal organizations.

By law, after termination of any part of education system (F III, F IV, F VI, University etc) the students are required to undergo compulsory national service at the Economic Youth Bregade camps. Here they undergo military training, learn various skills and as modern ways of farming, animal husbandry and carpentary.

PROBLEMS FACING ECONDARY SEDUCATION IN ZANZIBAR

1. Because of Universalization of secondary education, most schools have a shortage of qualified teachers. For instance, if it is assumed that university graduates and diploma holders are to teach in secondary schools, out of 3,226 teachers there are only 29 graduates and 31 diploma holders. These are normally posted to those secondary schools which end up to F IV. Thus, the majority of teachers who teach in F I to F III are ex-Form IV trained teachers. These teachers are upgraded by giving them refresher courses and seminars.

2. Most schools are lacking facilities such as libraries, laboratory equipment and text-books etc.

3. The problem of drop-outs.

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ANNEXES

CLOSING SPEECH
by the
Minister of Education,
Tanzania

Mr. Chairman, distinguished guests, ladies and gentlemen :

I am delighted to get the opportunity this morning to formally close this three-week intensive course on Microplanning of Education and School Mapping. Three weeks is a very short time indeed for such an important course. But looking through the programme, I have come to realize that what has been covered and the techniques you have gained are of immense importance to developing countries. I hope that those of you who have come from outside Tanzania have enjoyed your stay in Arusha. Although you may not have seen much of what Tanzania is really like, I hope all the same that for some time to come you will have living memories of this historic city of Arusha. You are always welcome back.

I wish to express again my Government's appreciation to the International Institute for Educational Planning (IIEP) for having selected Tanzania to host this intensive course on Microplanning and School Mapping. The history of the cooperation between IIEP and my Ministry is a long-standing one, and I need not tire you with it at this stage. It should suffice for me to express my satisfaction in our continued cooperation. I would wish to give special thanks to the professors who came and participated in this course and in saying this I must mention in particular Miss Caillods for her painstaking efforts in working out plans with the officials of my Ministry and making all necessary arrangements to ensure that this course became a success. I understand that the professors have done their best, during this short period, to get the participants to understand and appreciate the theories and practices in microplanning and school mapping. I would wish Miss Caillods to carry this message of appreciation to the Director of IIEP and to assure him that we find these courses to be very useful.

I understand that the three-week course had three main objectives :

(i) to analyse and identify all the factors : pedagogical, economic, geographic, social, administrative and political - which must be taken into account in designing techniques for planning the location of schools ;

(ii) to formulate such techniques in sufficient detail to be used as a guide to school location activities in our different countries, while being sufficiently flexible and universal to be adaptable to the particular conditions of each country ; and

(iii) to apply the techniques to concrete problems facing educational planners, such as universal first-level education, universal adult education programmes and the implementation of educational reforms, to name only a few.

One of our greatest challenges in education is to ensure that there is a successful marriage between theory and practice. Often these two do not seem to go together or rather there is a mismatch between the two. Your course, I understand, has attempted to provide this linkage, by applying the theories of microplanning and school mapping to a real situation. I am informed that you have made use of one case study which was jointly carried out in Kilosa District by the IIEP and officials from my Ministry. The case study, I am told, involved a critical analysis of the existing primary and secondary school situation in the district.

After considering all these factors peculiar to the district, attempts were made at making proposals for rationalizing the location of schools and other educational development prospects in the district. This, I think is the proper way of testing acquired knowledge. It makes it easier to see the relevance between theories and their applicability to real life situations. Conditions change from district to district and from country to country, but it should be possible to make effective use of the criteria you have learned in making it possible for rational choices to be made. We, in Tanzania, have a strong belief that many times such choices are made by the respective communities themselves, having the benefit of such technical inputs from experts which make it possible for their choices to be rational and reasonable.

Many developing countries, as we achieve independence, recognize that we must reform the education systems we inherited from the colonialists, in order to respond to our new perception of needs and development philosophies.

Consequently, many of our countries have set for ourselves the targets of providing complete primary school education to all eligible children, or at least of substantially extending our first-level school networks. But as all of us have found out, achieving these targets in practice, involves finding solutions to many awkward problems which arise in developing the most appropriate methods for planning among other things, the location of schools.

In its development efforts since independence, Tanzania has developed a system of lifelong and continuing education through programmes which respond and correspond to actual needs of the country. To achieve this objective, great efforts have been made to expand and make education a human right available to all. Tanzania's experience in this important task, is reflected in the adoption of the policy of "Education for Self Reliance", which is an exposition of the Arusha Declaration in educational terms. The Arusha Declaration and the policy of Education for Self Reliance, served notice that change was inevitable in the education system. Self-reliance applied to this educational reform, covered a coherent re-examination of the school system, its syllabi, examinations and, above all, its goals. The curriculum was diversified to include subjects such as agriculture, commerce, home economies and crafts. Efforts were also made to integrate classroom and practical work.

Unfortunately, the practical application of the policy of education of self-reliance was grasped rather slowly by planners and curriculum developers and its implementation proved to be a very difficult undertaking right from the beginning. Consequently, it was realized that it takes time for three broad policies to be clearly understood at micro-levels, and that it takes even more time for the results of implementation to be sufficiently perceptible. Mr. Chairman, this clearly shows the importance of complementing macroplanning with microplanning or planning at the local levels.

The idea of organising this course which would focus on the critical importance of microplanning and school mapping in the development of education was first proposed in 1980. Those who proposed this idea had several reasons for doing so. First, there has been achieved a very high degree of sophistication in the preparation of educational plans at the central level in most of our countries. But the implementation of these plans at the regional, district and school levels poses a major problem for solution.

Secondly, there are numerous and complex obstacles hindering the professionally prepared central plan from successful implementation. Amongst such obstacles are the difficulty of a comprehensible and convincing communication of the plan, both to those who are charged with its implementation and to the community at large, and hence the tendency by the national planners to plan "for" and not "with" the regions and districts.

Thirdly, there is the time-lag required to modernize obsolescent school networks, due to insufficient knowledge at the central level of prevailing conditions in regions and districts on which to base realistic plans , and lastly, there is a lack of administrative skill available for efficient implementation of the plans.

Lack of effective implementation is wasteful from the economic, social and pedagogical viewpoints. There is a costly under-utilization of resources, a lack of equality of educational opportunity and of educational supply, as well as an inadequate pedagogical provision, especially in the small rural schools.

It is for all these reasons that I believe it is necessary to adopt microplanning and school mapping as an indispensible complement to macro-planning of education. Indeed, since the situation is not unique, but common to many countries, it is all the more urgent to study techniques and strategies for bridging the gap between planning and implementation. But the lack of skilled educational planners is now seriously affecting both economic growth and social development. As a result, the need for training in microplanning and school mapping techniques has become increasingly necessary as well as urgent. It is, in fact, the only way of assisting a country like Tanzania in implementing its educational plans and making optimum use of resources available.

In a country like Tanzania, whose plan lays down national targets for the development of the educational system, the planning of school locations is the method for giving concrete effect, on the ground, to all these objectives and for helping, as mentioned before, to guide the flow of pupils in the direction at the level of education at which specialization begins.

Indeed, the pilot study for Tanzania, on Kilosa District, has accordingly meant to develop a methodology of school mapping, to test its usefulness as a technique for the general rationalization of school systems and to answer such questions for a school network as : how many ? where ? what kind ? for whom ? and at what cost ?

However, it should be emphasized here that rationalization of the pattern of school location is only possible in relation to various criteria, i.e. academic economic, social, etc., whose application does not necessarily lead to converging conclusions and that, as a result, the choice of one solution or the other ultimately depends on the importance attached to each of the various criteria.

It is important that rationalization proposals must aim at improving the supply in the less favoured catchment areas. The planning of school location is doubtless a prime tool in equalizing educational opportunities among the various areas and social categories.

Finally, Ladies and Gentlemen, although the proposals you have put forward are detailed and are made with reference to several factors : geographic, academic, social, economic and regional development ; they are, I should imagine, not a programme for implementation, but rather a basis for discussion and negotiation between the interested parties, so that decisions may be reached and priorities ordered.

With these words, I delcare the course closed.

Thank you.

ANNEX II

GENERAL INFORMATION ON THE
INTENSIVE COURSE ON MICROPLANNING AND SCHOOL MAPPING
ARUSHA, TANZANIA : 8th - 26th MARCH 1982

I. COURSE OBJECTIVES

The course has three objectives :

- to show the role of microplanning and school mapping in the overall planning of education ;
- to train participants in the various techniques involved in microplanning and school mapping ;
- to help each participant prepare an actual project of introduction to microplanning and school mapping in his/her own country.

The course should show participants how :

- to better identify all the factors needed to be taken into consideration when drawing up the school map and the microplan of education ;
- to increase their knowledge of certain techniques (enrolment projections, demography, cost effectiveness analysis) which are used in the preparation of the school map and microplan, as well as to plan the actual organization of their work ;
- to acquire training in certain statistical methods (questionnaire building, carrying out surveys, analysis of maps, construction and interpretation).

II. PREPARATION OF NATIONAL PROJECTS

See Appendix concerning the data you need to bring with you for the preparation of your national project.

III. LIST OF PARTICIPANTS

The complete list of participants will be sent to you in the near future. They will include some 40 Tanzania participants, from the central, regional and local levels, and 7 international participants from neighbouring East-African countries.

IV. PROVISIONAL PROGRAMME OF THE COURSE

You will find enclosed a provisional programme for the course, which gives you an indication concerning the sequence of the sessions. As you will see, it comprises three main activities :

(i) lectures and discussion sessions ;

(ii) simulation exercises, numerical applications ;

(iii) preparation of national projects.

APPENDIX TO INFORMATION NOTE

DATA NECESSARY FOR THE PREPARATION OF NATIONAL PROJECTS

I. GENERAL INFORMATION

- Brief presentation of the educational system of your country, of the educational reforms being carried out or of the objectives foreseen in the future educational plan.
- A detailed description of the process of allocation of resources for regions and districts (teachers and buildings) as well as actual procedures and methods in school mapping (existing norms, standards, etc..).

II. INFORMATION ON A SELECTED REGION/COUNTRY

You will be analysing in detail the organization of the school network, the coverage and efficiency of the system for one or two levels of education (primary, lower secondary, upper secondary), in one particular district or region that you should select (rural district, capital city, etc.). You should bring with you :

- detailed maps showing relief, road network, location of cities, boundaries of districts, enumeration areas and showing the exact location of each school ;
- data on economic activities, employment, various socio-economic centres ;
- demographic data on the district giving as much detail as possible :
  - . you need to have the distribution of population by district and enumeration areas ;
  - . you would also need data on birth rates, death rates, migration and population density ;
- for each school of the present network, you need to bring as detailed information as possible on :
  - . enrolment by grade, sex and age for two consecutive years ;
  - . repeaters by grade ;
  - . teachers by qualification and training ;
  - . school facilities and equipment.

LIST OF PARTICIPANTS

	Country	Name	Position	Address
1.	Botswana	Mr. Vincent T. SERETSE	Planning Officer Dept. of Town & Regional Planning	P/Bag 0042 GABORONE Botswana
2.	Ethiopia	Mr. EDDLE Senay	Planner	Planning Services Ministry of Education P.O. Box 1367 ADDIS ABABA Ethiopia
3.	Somalia	Mr. Ali Hassan GAAL	Head of Statistical Service Ministry of Educat'n.	P.O. Box 421 MOGADISHU Somalia
4.	Tanzania	Mr. A.S. BARUTI	Statistician Sectoral Planning Dept.	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
5.	"	Mrs. Rosie MWAMBENE	Planning Officer Sectoral Planning Dept.	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
6.	"	Mr. Vincent WAMBURA	Evaluation Dept. of Secondary Education	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
7.	"	Mrs. Elizabeth YONA	Education Officer Management & Administration Primary Educ. Dept.	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
8.	"	Mr. B. KATIGULA	Curriculum Developer	Institute of Education P.O. Box 35094 DAR-ES-SALAAM
9.	"	Mr. S.S. KUSILAWE	Higher Education Coordinator	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM

10.	Tanzania	Mr. B. KASOGELA	Inspector of Education	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
11.	"	Mr. M.J. VANLANKVELD	Planning Officer Sectoral Planning Dept.	Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
12.	"	Mr. M.Y. TUGUTA	Zonal Chief Inspector of Education Central Zone	P.O. Box 1373 DODOMA
13.	"	Mr. P. Jerome LYIMO	Supplies & Logistics Officer Dodoma Region	P.O. Box 901 DODOMA
14.	"	Mr. FRUMENSI A. MSOFFE	Supplies & Logistics Officer Arusha Region	P.O. Box 3032 ARUSHA
15.	"	Mr. Mohamed SEFU	Education Inspector Northern Zone	P.O. Box 460 MOSHI
16.	"	Mr. N.J. KANGERO	Education Inspector Northern Zone	P.O. Box 460 MOSHI
17.	"	Mr. Ali HASSANI	Supplies & Logistics Officer Kilimandjaro Region	P.O. Box 3052 MOSHI
18.	"	Mr. F.W. MUSHI	Supplies & Logistics Officer Kilimandjaro Region	P.O. Box 3052 MOSHI
19.	"	Mrs. KIMBULU	Supplies & Logistics Officer Morogoro Region	P.O. Box 651 MOROGORO
20.	"	Mr. B.M.L. NYAMBO	Asst. Zonal Chief Education Inspector Eastern Zone	P.O. Box 9403 DAR-ES-SALAAM
21.	"	Mrs. M.S. CHOKA	Supplies & Logistics Officer Dar-es-Salaam Region	P.O. Box 5429 DAR-ES-SALAAM
22.	"	Mr. M.J. MNTANGI	Teacher/Vice Principal Dar-es-Salaam College of National Education	P.O. Box 2329 DAR-ES-SALAAM
23.	"	Mr. I.S. TINDWA	Supplies & Logistics Officer Lindi Region	P.O. Box 299 LINDI
24.	"	Mr. J.M. NYARUSY	Education Inspector Southern Zone	P.O. Box 619 MTWARA

25.	Tanzania	Mr. M. MAJILI	Supplies & Logistics Officer Coast Region	P.O. Box 30080 KISBAHA
26.	"	Mr. D.D. SULEMANI	Supplies & Logistics Officer Mtwara Region	P.O. Box 543 MTWARA
27.	"	Mr. S.J. KABELWA	Supplies & Logistics Officer Singida Region	P.O. Box 144 SINGIDA
28.	"	Mr. J.T. MKOBA	Supplies & Logistics Officer Shinyanga Region	P.O. Box 320 SHINYANGA
29.	"	Mr. M.R. SERWANGA	Supplies & Logistics Officer Kigoma Region	P.O. Box 111 KIGOMA
30.	"	Mr. A.K. BEMBENYA	Supplies & Logistics Officer Tabora Region	P.O. Box 28 TABORA
31.	"	Mr. G. BISHIMIYA	Zonal Chief Inspector Western Zone	P.O. Box 1025 TABORA
32.	"	Mr. H.S. KAPINGA	Supplies & Logistics Officer Mbeya Region	District Education Office P.O. Box 3 MBOZI, Mbeya
33.	"	Mr. G.R.A. MWAKYEMBE	Zonal Chief Inspector of Education a.i. Highlands Zone	P.O. Box 1400 MBEYA
34.	"	Mr. H.A. MWAIBABILE	Supplies & Logistics Officer Iringa	Regional Education Office Private Bag IRINGA
35.	"	Mr. B.M.N. MWAKASANGA	Supplies & Logistics Officer Rukwa Region	P.O. Box 128 SUMBAWANGA Rukwa Region
36.	"	Mr. M.V. NYONI	Supplies & Logistics Officer Ruvuma Region	P.O. Box 11 SONGEA
37.	"	Mr. E.M. NDARO	Supplies & Logistics Officer Kagera Region	P.O. Box 142 BUKOBA
38.	"	Mr. John MUCHURUZA BINUSHU	Supplies & Logistics Officer Mbwanza Region	P.O. Box 128 MWANZA

39.	Tanzania	Mr. Michael Ogedjo FELIX	Inspector of Education Lake Zone	P.O. Box 2419 MWANZA
40.	"	Mr. C.B.M. SABUNI	Supplies & Logistics Officer Mara Region	P.O. Box 299 MUSOMA
41.	"	Mr. A.Y. MZEE	Education Officer (Secondary Educat'n) Directorate of Primary & Middle Schools Zanzibar	Ministry of Education P.O. Box 573 ZANZIBAR
42.	"	Mr. Ali Muhamed SADIZ	Statistics & Planning Officer Zanzibar	Ministry of Education P.O. Box 394 ZANZIBAR
43.	"	Mr. A.M. ISSA	Statistics & Planning Officer Zanzibar	Ministry of Education P.O. Box 394 ZANZIBAR
44.	"	Mr. M.M.A. SHAMBI	Education Officer Primary & Secondary Education Pemba	P.O. Box 203 Chake PEMBA Zanzibar
45.	"	Mr. B.A. MWAKASENDILE	Education Planning Officer	Ministry of National Education Sectoral Planning Department P.O. Box 9121 DAR-ES-SALAAM
46.	Uganda	Mr. K.A. LATIGO-OLAL	Senior Education Officer Planning	Ministry of Education Crested Towers P.O. Box 7063 KAMPALA, Uganda
47.	Zambia	Mr. G.L. MAKOMANI	Acting Senior Planning Officer	P.O. Box 50093 LUSAKA, Zambia
48.	"	Mr. Warson S. CHISAMBA	Education Officer Planning Regional HQs. Copper Belt Region	P.O. Box 71552 NDOLA, Zambia
49.	Zimbabwe	Mr. Josiah MHLANGA	Education Planning Officer	Ministry of Education & Culture (Planning) P.O. Box 8033 Causeway SALISBURY, Zimbabwe
50.	"	Mr. M. MAJOR	Deputy Regional Director (Education)	Ministry of Education & Culture P.O. Box 89 FORT VICTORIA Zimbabwe

List of Resource Persons

N. MUGOGO	Director of Planning Project Planning Section Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
P. ELINAWINGA	Directorate of Adult Education Ministry of National Education P.O. Box 9121 DAR-ES-SALAAM
H. de BOSCH KEMPER	Unesco Regional Office for Education in Africa (BREDA) P.O. Box 3311 DAKAR Senegal
F. CAILLODS	Programme Officer IIEP 7-9 rue Eugène-Delacroix 75016 PARIS
G. CARRON	Programme Officer IIEP 7-9 rue Eugène-Delacroix 75016 PARIS
TA NGOC Châu	Programme Officer IIEP 7-9 rue Eugène-Delacroix 75016 PARIS

DETAILED PROGRAMME

MONDAY 8 MARCH

9.00 - 10.00 am	Registration	
10.00 - 11.00 am	Inauguration of the course	
11.30 - 12.30 pm	Lecture I : Educational planning & school mapping - General introduction	F. Caillods
3.00 - 5.30 pm	Lecture II : Tanzanian educational policy, planning and administration	N. Mugogo

TUESDAY 9 MARCH

8.30 - 10.00 am	Lecture III : Planning literacy and post-literacy programmes - The case of Tanzania	P. Elinawinga
10.30 - 12.30 pm	Lecture IV : Presentation of Kilosa District	Kilosa District Education Office
3.00 - 5.30 pm	National presentation	Participants

WEDNESDAY 10 MARCH

8.30 - 12.00 noon	Lecture V : Statistical units and parameters for diagnosis	F. Caillods
12.00 - 12.30 pm	Exercise 1 : Collection of data	Faculty
3.00 - 5.00 pm	Exercise 2 : Identification of homogeneous zones	Faculty

THURSDAY 11 MARCH

8.30 - 10.00 am	Discussion on Exercise 2	F. Caillods
10.30 - 12.30 pm	Lecture VI : Demographic data & analysis of school enrolments	G. Carron
2.30 - 5.00 pm	Exercise 3 : Diagnosis of enrolment (Primary)	Faculty

FRIDAY 12 MARCH

8.30 - 10.00 am	Discussion on Exercise 3	G. Carron
10.30 - 12.30 pm	Exercise 4 : Diagnosis of enrolment (Secondary)	
2.30 - 5.00 pm	Consultation on national project	Faculty

SATURDAY 13 MARCH	Visit to schools and Ujaama village	
MONDAY 15 MARCH		
8.00 - 10.00 am	Discussion of Exercice 4	G. Carron
10.30 - 12.30 pm	Lecture VII Diagnosis on the quality of the educational services	G. Carron
2.30 - 5.00 pm	Exercise 5 : Diagnosis of teachers	Faculty
TUESDAY 16 MARCH		
8.30 - 10.00 am	Exercise 5 (cont'd.)	Faculty
10.30 - 12.30 pm	Discussion of Exercise 5	G. Carron
2.30 - 5.00 pm	Consultation on national projects	Faculty
WEDNESDAY 17 MARCH		
8.30 - 10.00 am	Exercise 6 : Diagnosis of facilities	Faculty
10.30 - 12.30 pm	Discussion of Exercise 6	G. Carron & Bosch Kemper
2.30 - 3.30 pm	Lecture VIII: An introduction to cost concepts	Ta Ngoc Châu
3.30 - 5.00 pm	Exercise 7 : Educational costs	Faculty
THURSDAY 18 MARCH		
8.30 - 10.00 am	Discussion of Exercise 7	Ta Ngoc Châu
10.30 - 12.30 pm	Lecture IX : Demographic data in school mapping	Ta Ngoc Châu
2.30 - 5.00 pm	Consultation on national projects	Faculty
FRIDAY 19 MARCH		
8.30 - 10.00 am	Lecture X : Projection of enrolments	G. Carron
10.30 - 12.30 pm	Exercise 8 : Projection of enrolments	Faculty
2.30 - 5.00 pm	Consultation on national projects	Faculty
MONDAY 22 MARCH		
8.30 - 10.00 am	Discussion of Exercise 8	G. Carron
10.30 - 12.30 pm	Lecture XI: Norms, standardised size and catchment areas	Ta Ngoc Châu & Bosch Kemper
2.30 - 5.00 pm	Consultation on national projects	Faculty

TUESDAY 23 MARCH

8.30 - 10.00 am	Exercise 9 : Norms and catchment areas	Faculty
10.30 - 12.30 pm	Discussion on Exercise 9	Ta Ngoc Châu
2.30 - 5.00 pm	Consultation on national projects	

WEDNESDAY 24 MARCH

8.30 - 10.00 am	Lecture XII : Prospective school map and microplan	F. Caillods
10.30 - 12.30 pm	Exercise 10 : Prospective school map and microplan (Primary)	Faculty
2.30 - 5.00 pm	Discussion on Exercise 10	F. Caillods

THURSDAY 25 MARCH

8.30 - 10.00 am	Exercise 11 : Prospective school map and microplan (Secondary)	Faculty
10.30 - 12.30 pm	Discussion on Exercise 11	F. Caillods
2.30 - 5.00 pm	Lecture XIII : Generalization and administrative procedures in school mapping	F. Caillods Ta Ngoc Châu

FRIDAY 26 MARCH

8.30 - 10.00 am	Final consultation on national projects	Faculty
10.30 - 11.30 am	Evaluation of the course	
12.30 pm	Presentation and closure of the course	

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EVALUATION QUESTIONNAIRE

This course on microplanning and school mapping was organized by the Ministry of National Education, Tanzania, and the IIEP, in cooperation with the Unesco Regional Office for Education in Africa, Dakar, Senegal.

We would greatly appreciate your comments with a view to helping us improve the organization of future courses.

I. BEFORE THE COURSE

1. Was the material sent to you sufficently in advance in order to allow you to prepare for the course ?

	Yes	No	N.R.
- Tanzanian	5.6%	86.1%	8.3%
- Non-Tanzanian	50.0%	50.0%	-
- Total	13.6%	79.6%	6.3%

Comments . Tanz.: - was not informed in advance what material to bring to course (8)
- instructions sent by Ministry were ambiguous (8)
- information on materials to be collected for course should have been sent 2-3 mnths. in advance since difficult to obtain data from regions (8)

. Non-Tan.: - instructions on materials to bring not specific enough (2)
- information received too late (mailing problems, late acceptance for the course) (2).

2. How many months in advance would you have liked to have been informed of your admission to this course :

- 1 month : 13.6%
- 2 months : 36.4%
- 3 months : 22.7%
- 4 months or more : 9.1%
- N.R. : 18.2%

II. DURING THE COURSE

3. On the whole, how would you rate this course :

	Tanzanians	Non-Tanzanians	Total
- very poor	-	-	-
- poor	-	-	-
- average	-	-	-
- good	47.2%	37.5%	45.5%
- very good	52.8%	62.5%	54.5%

4. The course consisted of a succession of lectures and exercises on various topics :

	How did you find the content of the sessions ?				Was the time devoted to the topic :			
	Very useful	Useful	Not very useful	N.R	Insuffi- cient	Suffi- cient	Too much	N.R.
Lectures	79.6%	20.4%	-	-	22.7%	68.2%	-	9.1%
Practical exercises	81.8%	18.2%	-	-	29.6%	54.6%	2.3%	13.5%
Preparation of national/ regional projects	38.6%	43.2%	15.9%	2.3%	56.8%	27.3%	-	15.9%
General introduction to micro- and macroplanning	70.5%	29.5%	-	-	15.9%	72.7%	-	11.4%
Tanzanian educational policy and planning	31,8%	65,9%	2.3%	-	15.9%	68.2%	2.3%	13.6%
Planning literacy & post-literacy programs: The case of Tanzania	20.5%	61.4%	13.6%	4.5%	13.6%	56.8%	6.8%	22.8%
Education & integrated rural development	Lecture did not take place							
Presentation of pilot districts	65.9%	29.5%	2.3%	2.3%	11.4%	72.6%	4.6%	11.4%
Statistical units & parameters	72.7%	25.0%	2.3%	-	27.3%	50.0%	6.8%	15.9%
Diagnosis of enrolment	86.4%	13.6%	-	-	25.0%	63.6%	-	11.4%
Diagnosis of teachers	77.3%	22.7%	-	-	18.1%	68.3%	-	13.6%
Diagnosis of facilities	72.7%	27.3%	-	-	36.4%	52.2%	-	11.4%
Introduction to cost concepts	70.4%	27.3%	-	2.3%	50.0%	38.6%	-	11.4%
Demographic data	70.4%	25.0%	-	4.6%	29.6%	47.7%	2.3%	20.4
Projection of enrolments	72.7%	27.3%	-	-	29.6%	56.7%	2.3%	11.4
Norms, standards & catchment areas	72.7%	22.7%	-	4.6%	25.0%	56.8%	-	18.2
Prospective school map	79.6%	20.4%	-	-	45.5%	38.6%	-	15.9
Generalization & administrative procedures	45.5% Majority of participants answered before lecture took place	34.0%	-	20.5%	18.2%	52.2%	-	29.6

5. **On the whole, was the material presented to you in lectures and exercises relevant to the problems in your region/country ?**

- **irrelevant** ☐ -
- **relevant** ☐ 31.8%
- **very relevant** ☐ 68.2%

6. **Given the range of subject covered, did you find the length of the course :**

- **too short** ☐ 20.5%
- **short** ☐ 65.9%
- **adequate** ☐ 13.6%
- **too long** ☐ -

7. **Is there any other subject you would have liked us to cover during the course ? Please specify.**

- Education and employment (3) - Projection of teacher requirements
- Planning post-literacy programmes - Curriculum
- Data collection (2)
- Costs (3)
- Demography (1)

8. **How did you find relations between participants and**

	Bad	Average	Good	N.R.
- teaching staff	-	2.3%	97.7%	-
- other participants	-	2.3%	95.4%	2.3%
- non-teaching staff	-	36.4%	59.0%	4.6%

9. **How did you find the arrangements with respect to :**

- **the lecture room** : Very good : 4.6% Fair : 4.6% N.R. : 2.3%
  Good & convenient : 83.9% Not very good : 4.6%
- **other working rooms** : (not applicable)
- accommodation : - Distance of accommodation to teaching area not conducive to work : 2.7% N.R. : 2.7%
- Tanzanians : very good : 11.1% ; good : 61.1% ; fair : 8.3% ; poor : 13.9%.
- Non-Tanz. : ideal : 87.5% ; good : 12.5%.

9. (Cont'd.)

Comments :

- Accommodation should have been provided at the teaching place for Tanzanian and non-Tanzanian participants (3)
- International participants should have been given the choice of not staying at the DVTC (1)
- Lunch at the DVTC was satisfactory (3)

III. ORGANIZATION OF FUTURE COURSES

10. Assuming that another course is to be organized in the future, what, in your view, would be the best formula ?

- International (countries from all over the world)	☐	22.7%
- Regional (e.g. West Africa, East Africa)	☐	59.1%
- National	☐	20.4%
- State	☐	-
- Local government	☐	-

11. How much time should be devoted to such a course ?

- less than 2 weeks	☐	-	
- 2 weeks	☐	-	
- 3 weeks	☐	4.5%	
- one month	☐	52.3%	
- two months	☐	40.9%	N.R. : 2.3%

12. On what other topics (apart from school mapping and microplanning) do you think it would be useful to organize a training course ?

	Tanz.	Non-Tanz.
- Educational management & administration	9	1
- Evaluation of educational programmes and projects	5	1
- Educational statistics & data collection	3	-
- Costs	3	1
- Techniques of educational research	4	-
- Literacy and adult education	-	2
- Education and employment, manpower projections	2	-
- School inspection techniques	2	-
- Teacher training programmes	2	-
- Education & development	1	2
- Curriculum development and evaluation	6	1
- Innovation in education	1	1

13. **Apart from other courses, what do you suggest IIEP could do to keep in touch with you (e.g. : sending you the list of publications ...)**

- Sending IIEP publications (30)
- Organize follow-up courses (7)
- Follow-up missions to the different countries/regions to evaluate implementation of school mapping (2)
- Organization of seminars (2)
- Send information on other IIEP courses (5), and research activities (1)
- Correspondence courses (1)

14. **Give your general comments on the course.**

- Course very well conducted (14)
- Course good and very useful (25)
- Very good teaching methods (4)
- Not enough time for exercises (1), national projects (1)
- Course too short (7), too intensive (1)
- Very relevant course and timely for Tanzania (5)
- Similar courses should be organized in other African countries (2)
- Course would have been more successful if participants had been better prepared (1)
- Visit to pilot region would have been necessary (1)
- Exchange of experiences between participants of different countries/regions was very useful (2).

15. **Which country/region are you from ?**

____

Name : ______________________________________

(optional)

Thank you.